Clinical Remarks on GASTROSTOMY; WITH CASES.

By THOMAS JONES, F.R.C.S.,
SURGEON TO THE MANCHESTER ROYAL INFIRMARY.

GASTROSTOMY, formerly so uniformly unsuccessful, promises to become a palliative measure of decided utility. To Sédillot, of Strasburg, belongs the credit of introducing both the operation and the name. In 1849 he performed gastrostomy on a male patient fifty-two years of age, who was the subject of cancerous stricture of the œsophagus. The stomach was opened at once, and the aperture in it fitted with a tube, which embraced an elastic catheter, introduced for the purpose of conveying nourishment. Unfortunately the attempt proved unsuccessful, as also did a repetiton of it during many succeeding years. The record of the cases operated upon between 1849 and 1876 constitutes an unbroken series of failures. The operation was repeated some twenty-five times, and most of the patients died within the first few days; some of them lived periods varying from four to ten days, and one survived forty days. In 1876, Verneuil, of Paris, obtained the first real success. His patient, a healthy lad, seventeen years of age, some months previously had swallowed a solution of caustic potash. This was followed by intense pain in the throat, with exfoliation of the mucous membrane of the stomach. When the acute symptoms subsided the patient experienced great difficulty in swallowing. The dysphagia increased, and attempts at catheterism of the gullet were frequently made, but without success. The stricture was situated about seven inches below the upper end of the gullet, and so low as to preclude the idea of œsophagostomy; it was therefore decided to perform gastrostomy. The portion of stomach exposed was carefully stitched to the lips of the wound in the peritoneum and abdominal wall. The viscus was then laid open and a vulcanite tube introduced. The patient made a good recovery, and almost at once was able to take liquid food through the artificial opening. At the time of operation the weight of the patient was 72 lb., a month later 75 lb., and three months later 92 lb. The lad lived seventeen months.

I have referred somewhat at length to this case because it forms the commencement of an important era, and constitutes the first of a limited number of successful gastrostomies. Since 1876 the operation has been frequently repeated. The most elaborate statistics of the results are those published by Blum.[1] He tabulates 131 gastrostomies, of these eighty-five died before the twentieth day—that is, in consequence of the operation, and so giving a mortality of nearly 65 per cent. Thirty-eight have survived the operation from several months to two years and more. One other point which these statistical tables bring out is worthy of our attention. By eliminating the gastrostomies for cancerous disease of the œsophagus we have left twenty-five examples in which the operation has been performed for fibrous or non-cancerous strictures. Of these only twelve patients died before the twentieth day, showing a mortality of 48 per cent. I think that if the merits of gastrostomy had no other basis than its success in non-cancerous strictures, it ought to claim our respectful consideration, and it is quite possible that if in cancerous cases we resorted to the operation at an earlier period and before the patient's powers had fallen to a low ebb, the successes would be more numerous. What particularly attracted my attention while perusing reports of gastrostomy cases was the rapid sinking soon after the operation. The little remaining strength has been quite unequal to the task of rallying. Even in these cases by an improvement in the mode of operating the chances of a successful issue are very materially increased. In THE LANCET of January 7th, 1882, I published a successful gastrostomy for non-cancerous stricture of the œsophagus. The patient (a female, now aged twenty-two) is still alive, and is able to work in a cotton mill, while she continues to introduce fluid food through the artificial opening. Quite lately, through the kindness of my friend Mr. Waller, late house-surgeon to the Blackburn Infirmary, I have been able to obtain an accurate statement of her condition. He writes to say that he has visited Mary N——, and found her in a very satisfactory condition. The general nutrition is good, and saliva and fluids can be swallowed with ease. The gastric aperture is patent, and is kept so by the patient constantly wearing a small plug, which accurately fits the artificial opening. A short time ago there was some slight eczema around the opening, which has now disappeared. The patient's weight was found to be 101 lb., which is considerably more than when she was last seen at the infirmary. This case must be regarded as one of the most satisfactory gastrostomies. Here was a patient doomed to one of the most distressing deaths—that from inanition—restored to a condition of comparative comfort; and it is quite possible deglutition may continue to improve, and that eventually dilatation of the stricture may be accomplished.

CASE 2.—Ann W——, aged forty-five, was admitted under Dr. Dreschfeld's care on June 21st, 1882. She was found to be suffering from stricture (malignant) of the œsophagus. There was no history of syphilis, and no corrosive fluid had been swallowed. Present disease commenced seven months before admission, with vomiting immediately after taking food. She soon began to lose flesh and to experience shooting pains down the inner side of the left arm. The vomiting was not accompanied by any exertion, but simply consisted of the regurgitation of unaltered food. An œsophageal bougie passed readily a distance of thirteen inches, when its progress was suddenly arrested. While under treatment emaciation steadily advanced, although she was fed by nutrient enemata. On July 3rd the patient was transferred to a surgical ward under my care, with the view of gastrostomy being performed. No difficulty was experienced during the performance of the first part of the operation, which was done on July 4th. The stomach was easily reached by making an incision below the left costal margin, commencing above opposite the anterior extremity of the seventh intercostal space. Care was taken that all oozing had entirely stopped before the peritoneum was incised. The stomach presented at the opening, and its peritoneal and muscular coats were stitched to the margins of the skin incision. The parietal peritoneum was not included. The number of sutures (chromised catgut) employed did not exceed half a dozen, and I feel convinced that the unfortunate termination of the case must to a certain extent be attributed to this cause. For six days afterwards no special symptoms appeared. The temperature continued about the normal, and there was an absence of pain. During this time the patient was exclusively fed on enemata, which consisted of three ounces of beef-tea or milk (peptonised) and four drachms of whisky every two hours. On July 10th the antiseptic dressings were removed, and the wound appeared healthy. The stomach was now opened with a tenotomy knife, a catheter introduced, and a small quantity of warm milk injected. The next day a pint of milk was administered by the artificial aperture, while the nutrient injections were continued. The patient progressed favourably until the 16th, when through an unlucky mishap a pint of cold milk was poured into the stomach. Immediately she became collapsed, and was seized with a rigor; afterwards the temperature rose to 102°, delirium, followed by insensibility, supervened, and the patient died in about fifteen hours. A short abstract of the post-mortem examination is appended. The body was well developed, but greatly emaciated. The margins of the gastrostomy incisions were united to the walls of the stomach, except at one part, where no adhesion had taken place. The tissues in the region of the incision were more or less infiltrated with purulent matter, and the underlying peritoneum acutely inflamed. The peritoneum was coated with a thin layer of inflammatory exudation. This was most marked (excluding the vicinity of the wound) in the region of the ovaries, both of which were intensely congested. The œsophagus was normal down to three inches and a half from the cardiac end, where the lumen was almost obliterated by a dense whitish mass of new formation (cancerous), which involved the whole circumference of the tube, and extended downwards about an inch and a half. To all appearance the fatal termination was immediately due to the accidental administration of milk which had not been properly warmed. The post-mortem, however, revealed an amount of peritonitis which in all probability had been going on insidiously for some days,

[1] Archives Générales de Médecine, November, 1883.

although the temperature and general symptoms contra-indicated such an assumption. The case clearly shows that great care is absolutely needed in carrying out the after-treatment. The milk or other fluid food poured into the stomach through an artificial opening should have a temperature of not less than 100°.

CASE 3.—Sarah A——, widow, aged fifty, was admitted into the infirmary under Dr. Leech's care in August, 1883. She was an in-patient for a week in March of the present year; was then sent to Cheadle Convalescent Hospital, where she remained six weeks, and appeared to derive considerable benefit. Her symptoms at that time were chiefly those of dyspepsia, with attacks of vomiting every three or four weeks. The vomited matter consisted of a dark brown fluid, which bore some resemblance to coffee grounds. Pain of an aching character, referable to the region of the stomach, accompanied each act of vomiting. No family predisposition to cancer could be discovered, and inquiry into a history of syphilis only gave negative results. Patient had never swallowed any corrosive fluid. The passage of an œsophageal bougie determined the presence of a stricture which was impassable and situated about fifteen inches and a half from the mouth. On August 16th, 1883, she was transferred to the surgical side of the infirmary. At that time she was very haggard, and had an exhausted anæmic appearance. For some days she had been fed on peptonised beef-tea and milk administered by the rectum. The injections were continued, and her weight increased from 90 lb. to 95 lb. Any fluid food given by the mouth appeared to stop before it reached the stomach, and in a few minutes was regurgitated. On Sept. 20th the first part of the operation of gastrostomy was performed with antiseptic precautions. No difficulty of any kind was met with, and the stomach was easily drawn forwards and sutured to the skin. In order to accurately approximate the peritoneal and cutaneous surfaces the number of sutures employed was about a dozen. After the operation all food by the mouth was stopped, and the patient fed by enemata of beef jelly and milk (an ounce of each) every two hours. The temperature for the most part maintained a normal course, reaching 99° on the 22nd. There was freedom from pain or any symptom of peritonitis. Fortunately the enemata were well retained. On the 26th the dressings were removed for the first time; the parts appeared healthy, and adhesions had taken place between the opposed surfaces. I now proceeded to make an opening into the stomach by means of a tenotomy knife. Through the opening a cannula was passed, and about a third of a pint of milk injected. This caused a stomach-ache, and during the night the patient became collapsed, and complained of pain in the abdomen. The cannula was withdrawn, and all attempts at the introduction of milk postponed until Oct. 4th—i.e., for eight days. Meanwhile the local and general symptoms indicated an attack of circumscribed peritonitis. For a week the temperature continued at or about 100°, and one evening it exceeded 101°. The fever had subsided by Oct. 4th, when a more successful attempt to open the stomach was made. A cannula was again inserted through a puncture produced by the tenotomy knife and six ounces of milk introduced. The cannula was retained *in situ* until the next day, when sixteen ounces of milk were poured into the stomach without causing any pain or inconvenience. The nutrient enemata were discontinued on Oct. 10th, and four pints of milk were administered daily through the artificial opening. About a month after the date of the first operation she was weighed, and found to be 87 lb., which is 9 lb. less than her weight immediately before operation. Six weeks later the weight was again taken and an increase of 13 lb. recorded. Each time the patient has been seen since her discharge a considerable increase in the weight has been noted. The patient is now in the enjoyment of very good health. The artificial opening occasions no inconvenience, nor does the surrounding integument bear any evidence of regurgitation. She is quite satisfied with the fluid food, and its introduction causes no sensation, except that of heat or cold. The condition of the stricture remains practically the same, and any food which is swallowed is instantly rejected.

CASE 4. Ann B——, aged thirty-nine years, admitted under Dr. Leech's care, on Oct. 12th, 1883. She is emaciated to an extraordinary degree, and, although of ordinary stature, she only weighs four and a half stones. The history of dysphagia extended back a year and ten months, and has been accompanied by symptoms of dyspepsia. At first the sickness recurred at intervals of a fortnight, but lately it has taken place immediately after each meal. She says she feels the milk pass down a certain distance, where it remains a few minutes and is then regurgitated. The patient has never swallowed any corrosive fluid, and no history of syphilis or cancer can be elicited. An œsophageal bougie can be easily passed a distance of twelve inches from the mouth. Its further progress is then suddenly and completely arrested. Three days after admission she was transferred to the surgical ward. For some time an attempt, partially successful, to improve her condition was made. By the aid of nutrient enemata her weight was increased by four pounds. On Nov. 3rd the first part of the operation was performed. No difficulty was experienced, the stomach being easily reached and brought forward. During the following week the patient was in an exceedingly low condition, and fears were entertained that it would be quite impossible to preserve life until the stomach opening could safely be made. However, by the careful administration of enemata and the free use of stimulants I succeeded in carrying her through a very anxious period. The operation was completed on Nov. 10th, and ten ounces of milk were at once introduced through the newly made opening without producing any pain or uneasiness. In a few days the quantity of milk administered by the artificial aperture was increased to five points, so the nutrient injections were discontinued. For some time she was much troubled by the regurgitation of a dark, grumous, exceedingly offensive fluid, which was brought up whenever she had a fit of coughing. No doubt it came from the œsophagus, which, in all probability, was dilated above the stricture. Its gastric origin was excluded by the non-appearance of the milk in the regurgitated fluid when the stomach was opened. The quantity of fluid gradually diminished, and finally ceased. Very soon she began to improve in appearance and to put on flesh, and we were able to register an increase of 8 lb. in her weight. Since her return home she has been heard of from time to time. At first there was a steady and continuous improvement, and she added considerably to her weight. Unfortunately, however, the amendment has been arrested by an attack of pneumonia, from which she is slowly convalescing.

CASES 5 and 6 terminated fatally about thirty hours after operation. Both were males. One patient, seventy years of age, had suffered dysphagia for thirteen months. From the distance the bougie traversed it was judged that there existed a stricture at the lower extremity of the œsophagus. No difficulty attended the operation. The patient rallied well, and remained free from pain for more than twenty-four hours, when the symptoms suddenly declared the onset of peritonitis. The temperature rapidly rose, and death took place in a few hours. In the other patient, a man forty-seven years of age, the sequence of events was practically the same. Death followed the operation after a similar interval, and was preceded by symptoms of a like nature. As no post-mortem examination was made in either case, the exact state of things must remain a matter of conjecture.

It should be noted that the method of operating in all the foregoing cases was that introduced by Mr. Howse. It constitutes an undoubted improvement over the plan formerly in vogue. By delaying the second stage of the operation for some days we obtain adhesions between the peritoneal covering of the stomach and the margins of the skin incision, so that when the stomach opening is made extravasation of the gastric contents into the peritoneal cavity is effectually prevented. French surgeons seek the same end by a double row of sutures, the first row between the parietal peritoneum and the serous covering of the stomach, and the second between the skin and the gastric opening. Mr. Howse's plan is preferable, and for several reasons. It not only removes all chances of extravasation into the peritoneal cavity, but it permits the first and most important part of the operation to be conducted with antiseptic precautions. Everyone who has practised gastrostomy will have been struck with the simplicity of the operation. As a rule, the stomach is found without any trouble being experienced. The late Mr. Maunder, however, encountered a serious difficulty which caused him to open the transeverse colon instead of the stomach. To avoid a similar accident Schönborn has suggested that a small india-rubber bag should be fixed to the end of an œsophageal tube. As soon as the latter reaches the stomach the bag is distended. This brings the anterior wall of the stomach into the wound and the operation is clearly rendered easier. Of course this suggestion presupposes the permeability of the

stricture, which is rarely the case, and when present would perhaps contra-indicate an operation. An attempt has been made to institute a comparison between œsophagostomy and gastrostomy. It would appear that they are applicable to different cases. Œsophagostomy may be appropriately employed in those cases where the obstruction is seated in the upper part of the gullet. Experience, however, teaches that these constitute the smallest class. It has been found that in nearly two-thirds of the cases of œsophageal cancer the disease is so situated as to render œsophagostomy inadmissible.

Some discussion has taken place in regard to the position which the gastric aperture should occupy. Langer,[2] arguing from physiological data, concludes that the fistula should be established in the cardiac portion, and not, as is frequently done, in the pyloric part of the organ. No doubt surgeons have made the opening in that portion of the viscus which presents, and I think it will be found that this is generally nearer the pyloric than cardiac extremity.

THE UNIVERSALITY OF CHOLERA.

BY DEPUTY SURG.-GEN. W. T. MOORE, C.I.E.

CHOLERA may be defined as a disease always present and frequently becoming epidemic, generally characterised by purging and vomiting, usually of a material resembling rice-water, commonly accompanied by cramps, and frequently resulting in suppression of urine and collapse. But the term cholera implies a principle which is repugnant to the disease; the term cholera signifies a flow of bile, but the want of bile is usually one of the most prominent peculiarities of the complaint. It is impossible, therefore, to use the term cholera without pointing out the absurdity of an expression which literally implies, not what it ordinarily is, but what it ordinarily is not. And this should be borne in mind, as tending in some degree to account for the numerous names under which cholera has been described, as a consequence of the numerous phases in which it develops itself. Allen Webb[3] long since remarked that much of the mystery and obscurity which attaches to cholera results from its having been regarded—since 1832 in Europe and since 1817 in India—as an entirely new and previously unheard-of malady; and he shows, by quotations from Snohruta, Wangohoo, and other ancient authors, that cholera is as old as India or China. "It is not always the same in its nature or effects. It is allied in its nature to some of the most desolating pestilences, as well as to some of the most common diseases." In its virulent form it begins, as Magendie observed, "in death." On the other hand, as with all other diseases, there may be a most mild and scarcely recognisable form of the malady. Of all writers, Macpherson[4] has, I think, most elaborately and satisfactorily shown that cholera is one of the most ancient diseases of which distinct descriptions exist, prevailing both in Europe and Asia from the earliest times. In support of the view of cholera having prevailed in early times in Europe, Macpherson refers to Hippocrates and Galen, who described a malady very similar to modern cholera; and he further demonstrates that cholera in one or other of its diverse forms has been described by successive European authors almost from the time of the ancients mentioned to the present date, and especially during the 14th, 15th, 16th, and 17th centuries. That cholera has been looked upon as a new disease in Europe since 1832 may be explained by the facts that medical writings of a reliable nature referring to former times were few, and that many of the writings extant, in consequence of the extraordinary variations which occur in the manifestations of the disease itself, do not describe that typical cholera which occurred in 1832, and which has come to be accepted as the only phase of the malady. Even analogous reasoning would teach that cholera prevailed in Europe and England in former times; for, as Surgeon-Major Waters[5] points out, considering that cholera is endemic only in countries where fevers of a malarious character are invariably to be found, and that these were common in England till a comparatively recent period—James I. and Cromwell having died of ague,—it may be inferred that when the latter prevailed in full virulent vigour, the former occurred in epidemic periodicity, as it does in India.

In support of the view of the antiquity of the malady in the East, there is the fact that the early Sanskrit writers were apparently well acquainted with cholera. In the Midan of Snohruta there is a description of a disease termed "vishuchuka" (meaning purging, vomiting, and fever), which was clearly cholera; while in other old Hindu medical works we have "jivat antishat," meaning fever and incessant purging. Then there is the significant fact that all the languages of the peninsula of India have a time-honoured name for the disease. Further, it appears to have been well known to the Mahomedan conquerors as "haidan" or "haiza," and it has been shown that cholera prevailed among the Mahomedans of Delhi in 1325. There is also a record in Todd's "Rajasthan," that temples to "Oola Bebee," the goddess of cholera, were found by the first European visitors in India. Macpherson makes the pertinent observation that as it is certain the Portuguese found cholera in India soon after their arrival in 1500, especially at Goa in 1540, it is only reasonable to believe that it existed in India previously. Mr. Gaskoin translated from the Portuguese a distinct notice of the disease occurring in 1503, when, as testified by Gasper Corea, 20,000 men belonging to the army of Zamoryn, King of Calicut, died, "sudden-like with pain in the belly." But the first full account given by a European physician was by Garcia D'Orta, of Goa, who, in 1653, pointed out several varieties of cholera, much as they exist now. The ideas, therefore, which have been held by many, and as stated below, cannot be regarded as tenable—viz., that Bontius in 1630 was the first writer on cholera; that cholera is a comparatively recent disease; and that, as concluded by the Constantinople Cholera Congress of 1854, some change came into operation about the year 1817, giving rise to the first great Indian cholera epidemic.

Even assuming, as Bryden held, that Bontius in 1630 first described cholera, I have before me references to no less than fifteen distinct notices of the disease from that period to 1784. Dr. Waters, indeed, states there are no less than sixty separate and independent testimonies to the occurrence of cholera in India during the 16th and 17th centuries. Lastly, there is no doubt it was recognised in the Madras Medical Board's reports previous to 1817. The fact is, our knowledge of the diffusion of cholera in India in earlier times is imperfect and limited, as our knowledge of the country was then imperfect and limited; but that it did prevail previous to 1817 appears indisputable, although perhaps called by other names. For instance, the word *modesh*, derived from *modus*, to tear, was adopted by the Portuguese, corrupted into *mort de chien*, and often applied indiscriminately to the different forms of cholera.

It is true that some of the writings on which reliance is placed both in Europe and India, to prove the antiquity of the disease, do not always describe the malady marked by suppression of urine, rice-water stools, and collapse, which in the present day is held to be true cholera. But this is only in accordance with the very numerous variations of the malady, as is sufficiently demonstrated by the number of names under which it has been described even in modern times, each term originating in some peculiar phase of the epidemic recorded. Thus we have in the writings of European authors the terms—Cholera Asiatica, asphyxia, algide, bilious, black, blue, dry, epidemic, endemic, febris, remittents, choleroidea, cholera foudroyante, malarious, malignant, nervous, nostras, pestiferous, hæmorrhagica, serous, simplex, spasmodic, sporadic, syncopal, and tetanic. There is also cholerine, choleriform, choleroid disease, choleroid fever or sweating sickness, and the choleroid cholic of the Himalayas, which Webb regarded as a connecting link between cholera and colic. There is also reason to believe that cholera has been described as "white dysentery" and as *fièvre pernicieuse*. Now all these are comparatively recent terms called into use by the varying nature of the malady. The disease appeared under different phases, and both in India and in Europe was described as it appeared, and therefore under a different appellation. There is indeed no disease in which the symptoms, although retaining certain characteristics, vary more. This variability of the affection was noticed on the first reputed invasion of cholera into Europe in 1832, when Dr. Pennick[6] pointed out how the epidemic in England differed from the disease in Russia. Allen Webb asked, in India, about

[2] Progrès Médical, Nov. 3rd, 1883.
[3] Pathologica Indica. [4] Annals of Cholera.
[5] Lecture on Epidemics at the Sassoon Institute, Bombay, 1884.
[6] Essay on Cholera, 1832.

the same time, "Who can tell where cholera ends and plague begins, or distinguish between certain forms of fever and cholera?" Macpherson states that the disease is essentially the same, but the cholera of one season varies from that of another. Ziemssen says that almost every epidemic has its physiognomy. Sir Guyer Hunter writes: "As there are varying degrees of fever, so there are varying degrees of cholera. It may manifest itself as a slight looseness of the bowels, or as a sudden paralysis of the vaso-motor system."[7] Chevers states: "Familiar as I am with the cholera of Calcutta, the disease I treated during a greater part of 1874 was of a type altogether new to me; no two cases of the disease were precisely the same." And, again: "As the malarious poison produces all variations, from a fatal remittent to the mildest ague, so with the cholera poison."[8] And such is the experience of most of those who have had much to do with cholera. In Bombay in 1883 persons died suddenly from collapse, without vomiting or purging, or after one or two loose stools. In other epidemics all the symptoms of cholera have occurred except that the stools were tinged with blood, mixed with blood, or even dysenteric. Often the premonitory diarrhœa is absent, and sometimes there are no cramps. At other times there are cramps and no purging. Sometimes the stools are not like rice-water, but colourless like serum. The similarity of cholera to fever is sometimes so great that both diseases have been attributed to the same cause—malaria. Cholera in its commencement may simulate an attack of ague, or terminate as fever. This is especially the case with the cholera of Peshawur. Cholera may also be so mild that the symptoms are scarcely recognisable. In every epidemic of cholera a large number of persons suffer from diarrhœa, which is, indeed, cholera in its mildest form. All this, however, is merely in accordance with other zymotic diseases, none of which are distinguishable by constant and invariable characters. As Carpenter has observed: "The peculiar morbific type of disease germ may be derived from the operation of particular environments on ordinary saprophytes through a long succession of generations." Mere degree is not sufficient ground for considering a disease different in essential character. There are mild and severe degrees of catarrh, influenza, scarlet fever, diphtheria, typhoid, &c.; some so mild as to be scarcely recognisable; and the symptoms of such diseases are sufficiently variable to often render diagnosis uncertain. But it has become the custom to regard cholera as a disease marked by certain signs only, and which spreads epidemically; and to say a malady is not cholera when all these signs are not present, or even if it does not spread when they are present. This view I am not prepared to endorse. The variability of the types of all other zymotic diseases is fully recognised. No one would deny a particular case to be one of diphtheria, or typhoid, or measles, because the symptoms were mild, or because all the symptoms of a typical case were not present; and it is only reasonable that the same breadth of view should be accorded to cholera. Then it would be recognised as what it really is—viz., a disease occurring at all times and in all countries, although not in the same degree of violence. Then futile endeavours to keep out the cholera by quarantine would be abandoned; then the erroneous idea that the disease is always imported from India would be no longer held; then there would be a better chance, especially on the Continent, of the axiom being acted upon—viz., that the incidence of cholera is always greatest in the most insanitary localities.

THE PREVENTION OF CHOLERA.

BY SURGEON-GENERAL A. C. C. DE RENZY, C.B.

As the history of cholera among the coolies proceeding to Assam by the Brahmaputra steamers is replete with instruction on the subject of the prevention of cholera, I think the subjoined facts will be opportune at the present time. The history extends over a period of nearly thirty years, and the facts are so well authenticated that they may be accepted with confidence.

From the very commencement of emigration *vid* the Brahmaputra the coolies suffered from frequently recurring and disastrous epidemics of cholera, and about the year 1870 the loss of life was so terrible that Government was forced to investigate the circumstances, and in 1872 an Act of the legislative council was passed prescribing arrangements in minute detail for the sanitary protection of the coolies. The cubical space on board the steamers, the ventilation and cleanliness of the vessels, the food, clothing, water-supply, and medical attendance of the coolies were provided for. The voyage up the Brahmaputra lasted about seventeen days, and during the trip the coolies were inspected by the resident medical officers of three intermediate stations. But, notwithstanding all the precautions taken, the epidemics continued to be terribly destructive; and it was not at all an uncommon occurrence for from fifty to seventy coolies to die from cholera in the course of a voyage. As the Government had adopted all the precautionary measures that had been suggested, and the sanitary arrangements had been again and again reported as satisfactory, the epidemics had come to be regarded as inevitable. They were supposed to arise from various mysterious causes which were beyond human control—as climate, malaria, predisposition on the part of the coolies, mental depression due to the pain of separation from friends, &c. The emigration reports from year to year abound with explanations of this kind. Such was the state of the question when my connexion with it began in December, 1877, on my appointment as Sanitary Commissioner of Assam. The question had great interest for me, for many reasons. The terrible sufferings of the people appealed strongly to my sympathies. The prosperity of the province, too, was closely dependent on the prevention of the epidemics. Labour was the great want of the province, and cholera every year swept off thousands of labourers who had been imported at a cost of about 100 Rs. per head. Moreover, during the ten years I had been sanitary commissioner of the Punjaub, I had had great experience of cholera, and I had been led to the conclusion that with proper precautions the disease might very easily be prevented. My views on this subject had been fully recorded in the Sanitary Reports of the Punjaub for 1868 and 1869.

As my researches had led me to believe that cholera is almost always propagated through water, in seeking for an explanations of the epidemics among the coolies on board the Brahmaputra steamers I naturally turned my attention, in the first instance, to the water-supply. But I was assured on all hands that the water-supply was above suspicion. The coolies, I was told, were supplied with water pumped from the great river, and especial care was taken to pump it only in mid-stream. The water was stored in fine iron tanks. And in confirmation of the opinion that in this case the water was harmless, I was told that the native crews of the steamers, some sixty or seventy in number, used only the Brahmaputra water, and they were singularly exempt from cholera. In the period of twenty years I was told that there had not been half a dozen cases of cholera among the crews. The information accorded entirely with my own later experience. I was on board steamers on several occasions when great epidemics occurred among the coolies, but the crews, although they lay at night on the deck amongst coolies, escaped entirely. There was no sickness of any sort whatever among them. These facts, which admit of the fullest attestation, made a great impression on me. But perhaps a still more singular fact remains. A very considerable number of Europeans have within the last twenty years gone up the river on the same steamers with the coolies. This class was composed of men, women, and children, for the most part connected with the tea industry. Strange to say, notwithstanding the great susceptibility of Europeans to cholera, these passengers, who lived on the same decks with the coolies and were only separated from them by a curtain during the daytime, were almost entirely exempt from cholera. I heard of only three or four cases in a period of many years. The European passengers used Brahmaputra water, clarified with alum and filtered. The coolies' water was treated with alum; but they often used the water before the suspended matter had time to subside. Since then the European passengers and the crews, who were exempt from cholera, used the Brahmaputra water (the crews used it without any clarification or filtration); it was quite certain that the epidemics among the coolies were not due to the use of that water. I was greatly puzzled to find a clue to the enigma, when it occurred to me one morning during the progress of an epidemic to get up very early, just as the coolies were coming down from their sleeping deck, and take up my position in the stern of

[7] Report on Cholera in Egypt, 1883.
[8] Notes on Indian Diseases, Med. Times.

the vessel where they stayed, and, without asking any questions, to observe their movements and doings. I very soon found what seemed to me a very satisfactory explanation of the mystery. I noticed the coolies crowding round two tubs half full of water, which were placed in the stern of the vessel, beside the entrance to the latrines. This water was intended to be used for ablution after defecation; but to my astonishment I saw the coolies rinsing their mouths with it, and even taking it away in their drinking vessels. I saw a woman washing her baby's clothing in a tub and coolies immediately after drinking the fouled water. The fact seemed to me so incredible that I brought Colonel (now Major-General) Sherer to witness the scene. Here, then, I surmised must be the explanation of the coolie epidemics. The water-tank had only one tap, and it was clear that 500 coolies, the number then on board, could not supply themselves with water from that one source; and as they had not the means of lifting water out of the river as the crew had, in their ignorance of the consequences they supplied themselves out of the polluted tubs. The tubs were replenished from time to time by a few bucketfuls of water raised by one of the crew, and when once they had been contaminated by the excreta of a coolie infected with cholera, they served for the culture of the virus and the circulation of it among other coolies. This discovery led me to study carefully all the arrangements connected with the supply of water to the coolies ashore as well as on board the steamers. I found the water-supply of the depôts in which the coolies were collected previous to embarkation in a most dangerous state. The depôts at Calcutta were situated in the northern portion of the town, to which the municipal water does not extend; but the Government orders were that a supply of drinking water was to be carried for the use of the coolies. The depôts, however, being about a mile from the nearest stand-pipe, the labour of carrying water such a distance was very great, and the temptation to evade the Government order was almost irresistible. As a matter of fact, on chemically testing some of the water I found conclusively that it was not municipal water, and that it must have been got from one of the innumerable filthy tanks in the vicinity of the depôts. Excepting the drinking water, all the other water used in the depôts was avowedly obtained from tanks of that character. One of these tanks was used for bathing and ablution by some 1500 coolies in the season, and as natives invariably rinse their mouths with the water they bathe in, the coolies must have swallowed the water of that tank very largely. These depôts were infested with cholera.

The water-supply of the depôt at Dhubri, a place some way up the Brahmaputra, was extremely bad. In the emigration season it was a mere stagnant backwater of the Brahmaputra, on the bank of which the cholera dead were buried, and, I may add, often disinterred by wild animals. I have seen vultures eating human remains and dropping fragments of them into the stagnant pool in which the coolies bathed, and at the same time took their drinking-water.

A third source of contamination was the water at the encamping grounds at which the coolies stayed on their march to the depôts at Dhubri; this water was in many places nothing but very foul ditch-water. At a place called Kanchrapara it was especially bad, as it was the effluent water of a washerman's village in which cholera is a perennial pest. I at once brought these matters to the notice of the Assam Government; but as the regulation of coolie emigration lay within the province of the Bengal Government, some time elapsed before any steps were taken to remedy the evils pointed out, and some of the evils remain in full force to the present time. The water-supply on board the steamers was improved; a pump was let into the side of the vessel and water was pumped into a long closed cistern provided with a number of taps, so arranged that it was physically impossible for a coolie to touch the contents of the cistern. Abundance of water was supplied for ablution fresh from the river, and the tubs were abolished altogether. At Dhubri a well was made, covered in and provided with a pump and a cistern with taps, but the work was done in a very unsatisfactory way, and in a letter of November 9th, 1882, from the deputy-commissioner, I learn that "the Dhubri well is not yet on a completely satisfactory footing; the water, though very much better, still continued to retain a slightly offensive smell until the other day, when its level sank altogether below the suction pipe of the pump, since which time the well has been out of use." In connexion with this state of the water-supply it is suggestive to note that in 1883 there were forty-three deaths from cholera among the coolies in the depôts at Dhubri.

In the Calcutta depôts makeshift arrangements, the best practicable under existing circumstances, were made, but under the system as it stands the most unremitting vigilance is required to prevent the use of contaminated water by the coolies. The water-supply at the encamping places remains as it was.

To recapitulate the changes made: 1. The water-supply on board the steamers was made satisfactory. 2. The water-supply at the depôts was improved, but is still far from satisfactory. 3. The water-supply at the encamping places remains unchanged, and is as bad as it can be. The improved water-supply on board the steamers came into operation in 1879, a year, I may add, of unparalleled mortality from cholera in Assam.

The following statistics show the annual death-rate among the coolies in the five years previous and in the five years subsequent to the change:—

Deaths per Cent. of Strength.

Previous to the Change.		Subsequent to the Change.	
1874	3·00	1879	0·81
1875	3·28	1880	0·42
1876	1·70	1881	0·88
1877	1·46	1882	0·65
1878	2·70	1883	0·65

In considering the above figures it is necessary to bear in mind that the saving of life during the last five years is considerably more than *prima facie* the figures represent. This arises from the fact that formerly when epidemics occurred it was the practice to land numbers of coolies at intermediate stations, and the deaths of these coolies were not included in the returns. In the last five years epidemics have been so infrequent that this practice has been very seldom resorted to. But taking the figures as they stand the reduction in the rate of mortality is very striking, and I think it impossible to attribute it to any other cause than the improvement of the water-supply.

I am bound, however, to state that Dr. Cuningham, the Sanitary Commissioner with the Government of India, disputes this conclusion. In his last report, that for 1882, which has just reached me, he thus expresses himself: "Para. 123. After enjoying a remarkable degree of immunity from the disease [cholera] for some time, the immigrant coolies again suffered on board the river steamers, and there were several outbreaks of cholera, those on the *Nepal* and *Sind* being attended with heavy mortality. The investigations which were made in the case of these and the other vessels concerned have only served to confirm the opinion expressed in former reports, and to show how hastily it had been assumed that the mere introducing of better arrangements for water-supply on board those steamers had almost entirely banished cholera from the coolies travelling on them." To this I would only reply that a reference to my Assam Sanitary Reports for 1878 and 1879 will show that I attributed the epidemics to defects in the water-supply at three points, viz.:—(1) On board the steamers, (2) in the depôts, and (3) at the encamping places. And as the defects indicated have been entirely removed at only one of the points, the results obtained are quite as much as could be reasonably expected. When coolies go on board infected at Dhubri it would be unreasonable to expect that the effect of the sanitary arrangements would prevent the development of cholera in them. All we have a right to expect is that the disease should be prevented from extending to those who arrive on board uninfected; that in fact these coolies should be put in the position of the native crews already referred to. And many of the incidents of the few outbreaks that have occurred within the last five years warrant the belief that this is attained. Since the water-supply on board the steamers was improved there have been three great epidemics of cholera in Bengal, the recruiting ground of the coolies, and Assam, the province to which they were proceeding, during 1879, 1882, and 1883. The epidemic of 1882 was the greatest that has occurred in Bengal for some years; but in spite of this the reduction in the rate of mortality of the coolies continued. It remains for Dr. Cuningham to assign a reasonable explanation of the reduction. In the earlier years of the experiment he attributed it to an abatement of epidemic influences, but that will not hold in the presence of the epidemics of 1882 and 1883.

It is, I think, greatly to be regretted that Government did

not comply with my earnest request to make the experiment complete, as I believe it would have thrown invaluable light on many obscure points relating to cholera. Emigration *vid* Brahmaputra is assuming immense proportions. Last year 20,000 coolies passed up the river. This great tide of human life affords unequalled opportunities for the exact study of cholera; but they are not turned to account because Government are taught to believe that the spread of cholera is governed by general influences which are altogether beyond human control.

Meanwhile I think the facts stated warrant the following conclusions:—1. Cholera has very feeble, if any, power of propagating itself through the medium of the air, otherwise the immunity of the native crews and the European passengers would be inexplicable. 2. Water is its favourite medium. When the water-supply is secure against contamination, it is hardly possible for cholera to become epidemic. The second conclusion is strongly confirmed by the experience of Fort William. This fortress stands in the midst of a community from which cholera is never absent, and scarcely a year passes that one or two cases of cholera do not occur among the troops, but since the water-supply was placed on a satisfactory footing the disease seems quite incapable of spreading. The Royal Commission of 1859 gives the death-rate of the garrison for a long series of years as 68·96 per 1000, and for the ten years ending in 1856 as 102·35 per 1000. In the ten years ending in 1882 the death-rate was only 9·45 per 1000. In many respects the sanitary condition of the fort is far from satisfactory; but the water-supply being safe, cholera is disarmed.

ON THE

INFLUENCE OF SMALL-POX HOSPITALS.

By EDWARD T. WILSON, M.B.OXON., F.R.C.P.,
PHYSICIAN TO THE CHELTENHAM GENERAL HOSPITAL.

No. V.

IT cannot be too often or too clearly stated that the Report of Mr. Power to the Local Government Board in 1881 on the spread of small-pox in the neighbourhood of Fulham Hospital is the *fons et origo* of the theory now so warmly debated of the "distal aerial dissemination of small-pox." Sir Risdon Bennett does, indeed, say that "it singularly confirms the opinion he has entertained upon the subject in regard to the diffusion of contagion of small-pox from a central depôt of small-pox";[1] but I am not aware that he has anticipated Mr. Power by the publication of any such opinion, nor does he give the data on which it rests, unless they are contained in his answer to Question 4833, where the conveyance of smoke to long distances by the wind is cited as a parallel phenomenon; with the reservation, however, that "of course this opinion is more or less speculative"; and "what becomes of it [the particulate infectious matter] when it does pass out into the outer air I really cannot say, or what change it may undergo I cannot say."[2] Attempts have subsequently been made in various directions to utilise the theory for the explanation of outbreaks of small-pox, but as yet the facts are found to fit rather awkwardly into their assigned places, and refuse to lend themselves kindly in support of the new hypothesis. It is possible, of course, that in time facts may be forthcoming, sufficient in number and in significance, to prove that the infection of small-pox can be carried in an active state through the air to a distance of a mile or a mile and a half. All I would contend for at present is that such facts have not been recorded, and that the statistical tables on which so large a superstructure of theory has been raised are worthless when tested by a close and analytical investigation. The attention of sanitarians has at all events been fully awakened to the possibility of distal aerial infection; observation will be quickened, and well-observed cases must soon accumulate, if such are to be found; meanwhile there is a real danger that in some cases facts may be unconsciously twisted into conformity with a foregone conclusion.

In the present paper I had proposed to consider our knowledge of small-pox spread through the open air, independently of Mr. Power's report; and I had hoped that the eminent witnesses, representing every grade of the profession, who were examined before the Hospitals Commission, would have been able to furnish precise and trustworthy data on which their opinions had been based. Great, however, was my surprise and disappointment to find that on the important subject of distal aerial dissemination of small-pox, it is literally a case of *quot homines, tot sententiæ*, and that few indeed of the gentlemen under examination could give a reason for the faith that was in them. It will not be uninteresting, and it may be profitable, to examine the state of opinion at the present time on the limits of out-door aerial spread of small-pox as displayed in the pages of the Report.

Dr. Bingham, a medical officer for the Asylums Board, fixed the distance for infection at two or three feet;[3] Dr. Hill, of Birmingham, at five or six feet; Dr. Tatham, of Salford, at six to eight feet; and Dr. Grieve, a medical officer of the Asylums Board, at eight to ten feet."[4] Between ten and fifty feet we have: Dr. W. Squire, fifteen feet;[5] Dr. Brydges, thirty feet, but would recommend 100 feet as a sanitary zone;[6] and Dr. Markham, thirty feet[7] (Sir William Gull would consider thirty feet safe for a single case);[8] Dr. Gibbons, sixty feet;[9] Dr. Collie, seventy feet;[10] Dr. De Chaumont, whilst allowing that he has no exact evidence to go upon,[11] fixes 100 feet as a safe sanitary zone; Dr. T. Orme Dudfield[12] and Dr. W. Gayton[13] arrive at a similar conclusion. From 100 to 200 feet, we have Dr. Tripe insisting on 150 feet for any number of patients less than 100; whereas for 500 or 600 patients 500 or 600 feet and more might be required.[14] Dr. Munk,[15] as well as Dr. Gregory and Mr. Marson,[16] fix upon 150 feet as a safe distance; Dr. J. S. Bristowe comes in at 300 feet,[17] but has no facts. Sir William Gull also would have 300 feet[18] for 100 patients or more, but has no evidence of spread beyond thirty.[19] Beyond 300 feet we find no evidence until we come to Mr. A. Farr at 1320 feet,[20] and to Sir J. R. Bennett at 1500 feet,[21] who thinks, however, that infection, like small shot or smoke, might travel a mile or two.[22] Sir William Jenner would insist on 2640 feet round a small-pox hospital,[23] while Dr. George Buchanan,[24] Dr. Thorne Thorne, Mr. Simon,[25] and Mr. Power himself give in their adhesion to the theory that infection may be disseminated to a distance of 7000 or 8000 feet. Surgeon-General Bostock, a manager of the Metropolitan Asylums Board, tells us he once held that thirty feet was safe, but his faith has been shaken, and he now knows of no rule for regulating the distance.[26] Lastly, Mr. H. Stevens,[27] perhaps unduly stretching Mr. Power's hypothesis, says: "Taking as a standpoint that there is atmospheric distribution of small-pox as illustrated by what is believed to be the case at Fulham Hospital, if that atmospheric distribution of small-pox extends, say, over 300 yards, why not over as many miles, and it might happen with a favourable southerly breeze that a man at York would be hit by a small-pox pellet from the Fulham Hospital." This, however, is little more than an amplification of Sir J. R. Bennett's comparison between the passage of small-pox matter and the travelling of smoke from the Great Fire of London as far as Oxford, or his more startling belief[28] that small-pox poison might very possibly strike a man at a distance of fifty miles.

The large interval which will have been noticed as existing between 200 feet and a quarter of a mile indicates pretty accurately the effects of Mr. Power's Report, and will serve to distinguish the adherents of the new hypothesis of distal aerial infection from those who still cling to the old lines of belief. That small-pox infection can be communicated through the air is, so far as I am aware, denied by no one, and it is difficult to see the bearing of Sir Wm. Jenner's remark[29] "that the *onus probandi* should rest not on those who hold that it does spread by the air, but upon those who hold that it never does spread through the air."

The important question awaiting solution is not whether it ever does spread through the open air, but to what distance can the infection of small-pox be carried in an active state through the open air, and what circumstances, if any, tend to favour or retard its dispersion, or its powers of infecting? On these points there is abundance of theory, but a truly marvellous absence of facts. The voice of authority can

[1] Hosp. Com. Rep., Q. 4828.
[2] Ibid., Q. 4834.
[3] Ibid., Q. 348.
[4] Ibid., Q. 348.
[5] Ibid., Q. 5029.
[6] Ibid., Qq. 677–679.
[7] Ibid., Q. 343.
[8] Ibid., Q. 4403.
[9] Ibid., Q. 348.
[10] Ibid., Q. 2084.
[11] Ibid., Qq. 2433, 2443.
[12] Ibid., Q. 1556.
[13] Ibid., Q. 2665.
[14] Ibid., Q. 2312.
[15] Ibid., Q. 4063.
[16] Ibid., Q. 4711.
[17] Ibid., Q. 522.
[18] Ibid., Q. 4312.
[19] Ibid., Q. 4366.
[20] Ibid., Q. 1934.
[21] Ibid., Q. 4841.
[22] Ibid., Q. 4903.
[23] Ibid., Q. 5339.
[24] Ibid., Q. 3783.
[25] Ibid., Q. 4504.
[26] Ibid., Q. 1377.
[27] Ibid., Q. 3443.
[28] Ibid., Q. 4903.
[29] Ibid., Q. 5333.

clearly do nothing for the settlement of this question, and the assistance of collective investigation might be invoked with much advantage. Well observed and accurately recorded facts can almost be reckoned on the fingers, and have never, so far as I am aware, been collected. A few were given by witnesses before the Royal Commission, but the instances of infection spreading over a greater distance than fifty feet are few in number, and not all so carefully recorded as their importance would seem to warrant. Dr. Thorne mentions a case which was in all probability caught "by reason of the bedroom window being only five feet from one of the windows of a room which was used for the reception of patients";[30] and in another case the disease was probably contracted from infected bedding exposed in a garden some eleven or twelve feet from a public thoroughfare.[31] Dr. B. W. Richardson is quoted[32] as having traced infection from a single case of small-pox to a distance of thirty feet; and Dr. Munk gives an instance of a person being attacked by the disease fourteen days after having watched a patient's entry to Highgate Hospital at a distance of forty-one feet[33]; the proof of this, however, is not so absolute as Dr. Munk would have us suppose; for it is impossible to say that there may not have been previous exposure to infection at a few feet or even inches in a London street, and especially in proximity to a small-pox hospital. Dr. Septimus Gibbon gives a case of a clergyman who (in his opinion) caught the disease through burying a corpse, though standing at a distance of sixty feet from the coffin.[34] Mr. Forshall quotes an instance of a student in St. Joseph's Monastery[35] contracting small-pox at a distance probably of from sixty to ninety feet; and Dr. Gayton gives a case[36] of a child which was supposed to have caught small-pox from sitting at an open window sixty-three feet from the hospital wards. For all these cases there is evidence more or less reliable; but the most remarkable instance—if we except a suggestion thrown out by Sir William Jenner, which could not have been seriously meant, that the small-pox matter might have been carried two miles and a half by the wind[37]—is one quoted at second hand by Dr. Haygarth, where ten out of twelve carpenters were supposed to have caught small-pox from a source of infection across a body of water at a distance of 1500 feet![38]

Apart from the examples in the Blue Book I am unable to point to any data pretending to accuracy, if we except the experiments performed by Dr. O'Ryan about a hundred years ago, and quoted by Dr. Haygarth, which would reduce the infectious zone of small-pox to a distance of from two to three feet. Sir John Rose Cormack, indeed, has given[39] the results of an interesting investigation by Dr. Bertillon into the spread of small-pox from an annexe of the Hôtel Dieu in Paris, during the year 1879, but unfortunately no measurements are given, and conclusions are based upon the fallacy common to this report, and that of Mr. Power, of reckoning the percentage of deaths to inhabitants, without giving heed to the units of which the population is composed. That small-pox depôts may become the centres of small-pox spread seems unfortunately to have been proved both in Paris and in London, but it is a mere *petitio principii* to say that "the history of the spread of small-pox in the vicinity of the annexe of the Hôtel Dieu is the history of spread by epithelial drift, so to speak, which no system of police can intercept,"[40] especially when it is further stated on the very same page that "the mode of diffusion was probably to a large extent by personal communication, a circumstance which prevents an estimate being formed of the extent to which epithelial drift disseminated the disease."[41]

In the recent outbreak in Hackney, which has formed the subject of an interesting paper by the medical officer of health, Dr. Tripe, the same fallacy is repeated of applying purely statistical methods to numbers utterly inadequate, and without sufficient examination of the component units. In the first six days, Dr. Tripe tells us the cases in Hackney were as follows:—

	Radius.							
	¼-Mile.		½-Mile.		Mile.		Outside.	
Cases	20	....	15	....	16	....	14	
Population ..	10,000	....	30,000	....	60,000	....	100,000	
Percentage on population	2·00	....	0·50	....	0·24	....	·0014	

[30] Ibid., Q. 1051. [31] Ibid., Q. 1091. [32] Ibid., Q. 346.
[33] Ibid., Q. 4582. [34] Ibid., Q. 342. [35] Ibid., Q. 2355.
[36] Ibid., Q. 2646. [37] Ibid., Q. 5364. [38] Ibid., Qq. 4918, 4963.
[39] Location and Administration of Special and General Hospitals in which Contagious Diseases are received.
[40] Op. cit., p. 11. [41] Op. cit., p. 8, note.

But it must be borne in mind, as Dr. Robert Fowler very pertinently remarks in his speech before the City of London Union Guardians, "Homerton Hospital was actually built because these diseases seemed to be always making their home in the neighbourhood," and we are told nothing of the houses or of the populations which cover the areas so arbitrarily marked out. It may be mentioned also incidentally that whereas twenty-eight cases were deemed sufficient to infect the neighbourhood in some occult manner in 1884, no harm had been known to result from eighty cases[42] in a previous epidemic, and this in spite of the laundry being so close to the road that, while washing was going on, spray from the tubs has actually splashed into the face of the medical officer of health while walking in the street.[43]

Instances of complete immunity from small-pox at comparately short distances have been already mentioned in my previous papers, and they might be multiplied indefinitely, but although worth noting as negative evidence, they must yield before one well-authenticated fact. If small-pox can be proved in any one instance to have spread through the open air to a distance of 200 or 300 feet, instances of immunity at any less distance are of little worth for the objects of this inquiry. That small-pox is the most active and virulent of all the infectious diseases seems generally admitted; also that it consists of solid particles of inconceivable minuteness thrown off into the air from the pustules, the breath, and probably by the excreta, though it is a singular fact that even under the most favourable circumstances for such a means of spread no extension of the disease seems to have been traced to the drains of a small-pox hospital.[44] That this particular matter can attach itself to the persons and clothes of healthy persons, and so be carried to long distances, is beyond dispute; it may also float through the wards of a hospital, or be blown through corridors for many feet, as noticed by Sir J. Rose Cormack[45] in Paris, and by others, as at Bradford Hospital, where the long closed corridor at one time acted very like a spout. It may also, according to Mr. Simon and Dr. Macgillivray,[46] remain still active after three years' sojourn in the fomites of a deserted cottage. On the other hand, there seems no doubt that its power for harm is weakened by distance; and it remains to examine the circumstances which hinder or favour its dispersion through the open air. The actual quantity required for infection has not, as far as I am aware, been ascertained; nor has the extent to which small-pox matter may be oxidised and rendered inert by the atmosphere under varying degrees of moisture or dryness. Common-sense would suggest that, apart from its destruction *in transitu*, the infectious particles would be carried further in the direction of the wind than in any other direction, and Dr. Bond[47] has measured the distances to which infection was apparently carried from house to house in this manner in two cases which occurred in his district, and finds them to be 53 and 107 feet respectively. But it is distinctly stated in more than one instance of small-pox spread that it has not been in the direction of the wind prevailing at the infection period. In the recent outbreak at Hackney, described by Dr. Tripe, the infection did not go with the wind, but in the opposite direction. In the outburst at Fulham in 1881, Mr. Power does not suggest that the direction of spread was influenced by the wind—a still and foggy atmosphere, devoid of ozone, with occasional light airs from every point of the compass, was considered to be the chief agency on that occasion in disseminating the infective particles. That solid particles should travel against or, so to speak, under the wind is so improbable that it lends additional weight to the suspicion that more earthly messengers have been engaged in the infective process, even though we find a difficulty in detecting them; and it would appear as reasonable to describe dynamite as aerially disseminated because no dynamitard has been detected in the act and brought to justice, as to attribute the dissemination of small-pox round a hospital to atmospheric agencies wherever a difficulty occurs in accounting otherwise for the origin of the disease.

Observation and direct experiment are surely needed to settle some of the most elementary points connected with the spread of disease. What degree of concentration, for instance, is required in small-pox virus for infection through the air? Is the immunity observed, say at 200 feet,

[42] Hosp. Com. Rep., Q. 2186. [43] Ibid., Q. 2308.
[44] Ibid., Qq. 2241, 2293. [45] Pamphlet, p. 5.
[46] Hosp. Com. Rep., Q. 4530.
[47] Report for the Gloucestershire Combined District, 1882.

due to dispersion and simple dilution of the infectious particles, or to changes brought about by the oxidising processes in their passage through the air? Can we liken these particles thrown off by a patient to shot from a gun?[48] or should they not rather be compared to a charge of steam, or of hailstones, which in their passage would change their form or disappear? Mr. Power seems to think their transference is favoured by fog; and Dr. East, in a thesis which gained the gold medal of the University of Durham on "Hygrometricity, and the Spread of Specific Contagia," takes up a similar position, but no proofs are given. "At a time," he says, "when small-pox was not epidemic in the district, but there were over 100 patients under treatment in the Homerton Hospital, seven fresh cases came under my notice, all occurring within a quarter of a mile of the hospital; and although the most careful inquiries were instituted as to the possible modes by which the disease might have been contracted, none were discovered, and *I was forced to fall back on the assumption* that something had passed from the hospital to those affected, and *that the transit was through the air.*" Having then noticed that "a few weeks prior to the outbreak of these seven cases the hygrometric state of the atmosphere averaged eighty-nine degrees....., *I was led to the assumption* that there was probably in this fact a cause for the unusual incidence of small-pox in the neighbourhood about the hospital." On the other hand, we have Sir Wm. Gull[49] expressing an opinion that if the air were very dry the particles might travel further in an active state. Amidst such conflicting opinion it seems hard indeed to find any safe resting ground, and the Royal Commissioners have taken up an attitude so absolutely neutral as to leave the problem very much where they found it. "We feel," so runs the Report, "that so long as it is not proved that personal communication is adequate to the explanation of the whole spread of small-pox" (*when will this be possible?*), and so long as "distant atmospheric dissemination is not shown to be in the highest degree improbable, so long it is essential that in the construction and management of small-pox hospitals both sources of danger should be with the utmost care guarded against."[50] There may be reason to doubt whether these recommendations have been rigidly adhered to under the present regulations of the Asylums Board, by which fifty acute cases are admissible to each of the small-pox hospitals of the metropolis, but the admirable organisation recently introduced for the ambulance service in London, the increased care which is being exercised in the management of the hospitals devoted to infectious disease and the increased vigilance on the part of medical officers of health may, by excluding some of the gravest risks of infection, throw some light upon the spread which is admitted to take place from a small-pox hospital situated in a crowded locality. New facts will doubtless be forthcoming, and they must be carefully weighed, for the issues at stake are portentous. Should Mr. Power's theory be confirmed by additional and more accurate evidence, the position now taken up by the Asylums Board becomes untenable, and disaster could only be averted by a bold adoption of the circular hospitals, so admirably planned by Dr. J. Burdon Sanderson, and described before the Hospitals Commission, in which infection is consumed on the premises and its aerial dissemination rendered impossible.

I have already exceeded the allotted space, and must therefore content myself in conclusion by repeating a conviction, supported, as I believe, by the arguments and illustrations of my preceding papers, that no sufficient evidence has yet been adduced for the outdoor aerial dissemination of small-pox infection in an active state to a distance of 200 or even of 150 feet.

Cheltenham.

[48] Hosp. Com. Rep., Q. 4903. [49] Ibid., Q. 4361. [50] Ibid., p. xxv.

QUEEN'S COLLEGE, BELFAST.—The following have been awarded prizes at the termination of the summer session:—Botany—Senior Division: John Campbell, D. C. Smiley. Junior Division: C. E. Shaw, J. W. Moore, R. W. Haslett, J. M. Downer. Practical Chemistry: S. R. Collier, R. J. Ferguson, C. J. McVicker. Medical Jurisprudence: W. B. McQuilty, John Menary, J. K. Close, Andrew Buchanan and Samuel Moore (equal), A. S. Thompson. Midwifery: John Menary and C. W. J. Dunlop (equal), David Mark, Samuel Moore, Andrew Buchanan, Samuel Alexander and A. S. Thompson (equal).

A YEAR'S SURGICAL PRACTICE IN THE JAMSETJEE JEJEEBHOY HOSPITAL, BOMBAY.

By WELLINGTON GRAY,
PROFESSOR OF SURGERY, GRANT MEDICAL COLLEGE; SENIOR SURGEON TO THE HOSPITAL.

WITH the view of enabling the profession at home to judge of the kind and amount of surgical work that can be accomplished annually in a large native hospital in this country, I am induced to place before the readers of THE LANCET the following abstract, compiled from the returns and report of the Jamsetjee Jejeebhoy Hospital for the year 1883.

In this hospital one hundred and eight beds, or thereabouts, are set apart for surgical cases, and are in charge of the second surgeon, Surgeon W. K. Hatch, I.M.D., and myself. To give an idea of the circumstances under which we work I may mention that we are without skilled assistance of any kind; except when aided by the students during term time we have to attend to most of the petty details ourselves; while in cases of difficulty and doubt we have as a rule to rely on our own individual, or combined, judgment as circumstances may happen to require. I should mention, however, that fractures are put up and the first dressing usually applied to wounds by the apothecary on duty. We have a house-surgeon, a member of the subordinate medical department, but he is house-surgeon in name only; he does everything but house-surgeon's work as it is ordinarily understood in England and elsewhere. The enforced performance, by the surgeon himself, of work which in other hospitals is left to house-surgeons and dressers is no doubt for the benefit of the patients, but it takes up much of his time. The necessity also of having to depend so much on one's own unaided judgment in difficult or doubtful cases is not an unmixed evil: the practice at least engenders decision and self-reliance, courage in undertaking single-handed large and formidable operations, and readiness in emergencies. Until recently, too, nursing, as we now understand it, had no existence in this hospital; the sick, as regards the administration of medicines &c., were at the mercy of untrustworthy native servants; while the little comforts and attentions that add so materially to the welfare of a patient were unknown. All this is now changed, in the surgical wards at least, by the presence there of two of the All Saints sisters, who give their services voluntarily and gratuitously. Food and medicine are now given in accordance with instructions, the comfort of every patient is attended to, order is preserved in the wards, and in special cases urgent symptoms are watched for and brought to notice. It is hardly too much to say that patients who would have died under the old system recover under the new. I take advantage of this opportunity to bear testimony to the great and valuable services of the sisters.

The following list shows the number of admissions for different kinds of injuries during the year:—Fracture of the skull, 10; injuries of the spine and cord, 6; dislocations and fractures of facial bones, 12; fractured ribs, 15; fractures of the upper extremity, 81; dislocations of the upper extremity, 16; fractures of the lower extremity, 73; dislocations of the lower extremity, 12; multiple injury, 15; rupture of viscera, 3; burns and scalds (severe), 29; wounds of all kinds (severe), 198; snake-bite, 2; bites of animals other than snakes, 21. The greater number of these cases were of the ordinary kind, and presented no features of special importance. They were caused chiefly by falls, mill and street accidents, assaults, and the burns usually by the upsetting of paraffin lamps, women and children being the chief sufferers. Fractures in this country, as a rule, unite readily; a case of ununited fracture, indeed, is practically unknown in our hospital. In the treatment, we adhere generally to the old-fashioned simple splints, and have no reason to be dissatisfied with the results. Compound fractures, of which we receive many very bad cases, rarely give trouble, although I cannot say that we ever treat them after the strictly antiseptic method. The wound closes readily under ordinary dressings, combined with scrupulous cleanliness; and I am unable now to call to mind a single case during the past year where complications or delay have arisen.

One or two of the cases of multiple injury were of special interest. A man, aged sixty, fell head foremost down a

stoep staircase, striking his chin against the ground. He sustained simple fracture of the right humerus and left femur, compound fracture of the lower jaw, and fracture of the base of the skull, due to both condyles of the jaw having been driven through the glenoid fossæ. He died shortly after removal from hospital by his friends. In the second case a man fell on his feet from the top of a palm tree fifty feet high. Both calcanea and the spine in the lower part of the dorsal region were fractured, and he also sustained Colles' fracture on both sides. One of the latter was compound, with such extensive injury of the soft parts as to necessitate amputation. This patient died on the second day. In a third case the injuries were depressed fracture of the skull, fracture of the pelvis, and of one rib; the patient recovering without a bad symptom. The three cases of ruptured viscera were due to street accidents, and were all rapidly fatal. The organs injured were respectively the bladder, stomach, and lung; the two latter occurring in children.

We rarely see snake-bite in Bombay, poisonous snakes being now few and far between. Both the cases recorded were bites of the echis carinata. One simply came to the hospital to be dressed, and went away before any very acute symptoms had supervened; the other was admitted twelve days after the infliction of the injury, which was close to the elbow. Here an abscess had formed, while the greater part of both feet had become gangrenous. There was no history of the mucous hæmorrhages usual in such cases. Under careful nursing, good food, and appropriate local treatment the patient, a boy of twelve, quickly got well. Several persons suffering from dog-bite came to the hospital to have their wounds dressed, the injury in some instances having been undoubtedly inflicted by rabid animals, as we learned after careful inquiry. So far, however, no case of hydrophobia has turned up in consequence.

Few of the numerous cases of wounds admitted were of any special interest or importance. In one case of homicidal injury the weapon, a long sharp-pointed knife, entered the left side of the chest between the ninth and tenth ribs, notched the lower edge of the lung, passed through the diaphragm, and transfixed both spleen and stomach. The injury to the latter was at one time recognised during life, in consequence of some of its contents having escaped through the external wound. It happened to be full at the time the injury was inflicted. Another victim of the same murderer received a stab in the lower part of the abdomen, the knife entering just internal to the anterior superior iliac spine, passing through the mesentery, and then downwards to the sacro-sciatic foramen, dividing both the internal pudic and sciatic arteries; the small intestine, which protruded, was uninjured. The patient, a man of eighty, died on the second day. In a third victim, who died before he reached the hospital, death appears to have been instantaneous: the knife was driven in transversely between the fourth and fifth left ribs to a corresponding point on the opposite side. In its passage it laid open the right ventricle and notched the back of the sternum. We admit a large number of lacerated and contused wounds of the extremities from the cotton mills and the streets. Strange to say, these mill accidents are not more common now, with nearly fifty mills at work, than they were twelve or fifteen years ago, when there were only half a dozen. The reasonable interpretation of this is, I take it, that the operatives have learned how to take care of themselves. The treatment of these ugly injuries by antiseptic irrigation and iodoform gives very satisfactory results. Of late I have tried, with equally good results, a dressing of iodoform on dry lint, then a thick pad of oakum, and a tight bandage over all, the wound, of course, having first been purified as far as possible. No sutures are used. This dressing is not disturbed unless the thermometer shows unequivocal signs of suppuration having occurred. Some of the most unpromising cases have healed admirably under this treatment.

That scourge, traumatic tetanus, often renders our most careful treatment of wounds of no avail. We have a pretty constant average of twenty-five cases annually. Last year, however, we had only thirteen, and the year before eighteen. I am convinced that more rigorous attention to cleanliness and sanitary surroundings is one main cause of the falling off, as far, at least, as those cases which originate in the hospital are concerned. Still, in spite of all precautions, it continues to occur from time to time under the most unexpected circumstances. The mortality for all cases averages 80 per cent. I may note here that last year we had not a single case of pyæmia, or, with one exception, of any form of septic poisoning, and this notwithstanding the fact that strict Listerism was not once employed in the treatment of compound fracture or accidental wound.

Surgical Diseases.—These comprised principally abscess, ulcer, sinus and fistula, venereal diseases, stricture, affections of the generative organs, joint diseases, and caries and necrosis. I cannot say that many of these differed, either in peculiarities or treatment, from the ordinary run of such cases. As regards venereal diseases, I may mention that for some years past we have had a Contagious Diseases Act in force in the city of Bombay; and as an important fact in support of the policy of repression, and one not sufficiently recognised, I think it desirable to mention that sloughing and phagedænic chancres, which under previous conditions were frequently seen, are now practically things of the past so far as this hospital is concerned. I recollect that in former years many horrible, and even fatal examples, of sloughing phagedæna used to be admitted; last year, on the contrary, not a single case was seen, nor in this year up to the present date. In speaking on this question here I must be understood as holding to the belief that infection derived from a phagedænic chancre is a potent factor in the reproduction of that form. Civil and military statistics in this presidency tell us conclusively that if the Contagious Diseases Acts have accomplished nothing else, they have at least resulted in modifying the severity of primary lesions. Amongst affections of the generative organs, I have met with three cases of acute inflammation of the tunica vaginalis; or acute hydrocele it might be called. The disease was of only a week's duration, with great pain and tension, accompanied by fever; the tumour in each case was quite as large as a cocoa-nut; the fluid contents were slightly turbid, and the serous surface was covered with a thick velvety coating of lymph. With a free incision and a drainage-tube recovery quickly followed. Should further opportunities occur I shall investigate the subject more closely. In none of the cases was I able to assign the inflammation to any definite cause. A case of scrotal abdominal hæmatocele which occurred during the year has already been reported in THE LANCET of Sept. 22nd, 1883. One case of acute glossitis, ending in abscess, was treated.

Operative Surgery.—Last year there were performed 152 major and 2519 minor operations. Of large amputations 37 were performed, as shown in the accompanying table:—

——	Primary.	Cured.	Died.	Secondary.	Cured.	Died.	Disease.	Cured.	Died.
Thigh	1	1	—	1	—	1	3	1	2
Knee	3	3	—	—	—	—	3	1	2
Leg	6	5	1	—	—	—	5	4	1
Foot	3	3	—	—	—	—	2	2	—
Shoulder	1	1	—	—	—	—	—	—	—
Arm	3	3	—	—	—	—	—	—	—
Forearm	4	2	2	—	—	—	—	—	—
Hand	2	2	—	—	—	—	—	—	—
Total	23	20	3	1	—	1	13	8	5

Nearly all the primary operations were for railway and machine accidents; the disease cases for joint affections and mycetoma. The first point to be noticed in this table is the disproportion between the mortality in primary amputations as compared with that after the operations for disease. The secondary thigh amputation was for a smash of the limb just above the knee, with compound fracture of the leg, the result of a tramcar accident. The patient declined operation till it was too late, and in a few days after it was performed he died of exhaustion. The same thing happened in two of the amputations for disease: the patients and their friends refused consent till the favourable moment had passed, and then pressed for operation—death following from exhaustion. All three were cases of knee-joint disease. Carden's operation was the one invariably chosen for the knee amputations of the year. We have given a fair trial also to disarticulation, but have come to the conclusion that the latter gives far better results, both as regards the process of healing and the condition of the stump. The one successful operation for disease was for mycetoma. The two fatal cases were for elephantiasis of the leg, with ulceration, and for knee-joint disease respectively: the first died from exhaustion, and the second from pulmonary thrombosis the day after operation.

In the fatal case of primary leg amputation death resulted from spreading gangrene; but why the disease should have supervened in this particular case we were never able, after the closest investigation, to discover. The patient was young and healthy, the injury was quite local, and he was placed after operation in exceptionally good sanitary circumstances, far removed from any source of septic infection. The disease amputations were all for advanced caries of the ankle-joint and tarsus. Death in the unsuccessful case was due to tetanus. In one instance, although the patient suffered from phthisis in addition to the joint disease, and was much emaciated and reduced in strength, he yet made an excellent recovery, the wound healing by first intention. So complete, indeed, was the recovery, that when he came to hospital later on to show himself and to have his wooden leg altered, I found some difficulty in recognising him; the lung symptoms had to a great extent subsided, and he had grown quite fat and strong. I regard this example as additional proof, if such were needed, that the removal of a diseased limb in the case of a phthisical subject is, when judiciously resorted to, sound surgery. There is nothing particular to note about the foot, shoulder, and arm amputations: all did well. In the two fatal cases of amputation of the forearm death was due to other injuries; in one instance to fracture of the spine, and in the other to severe burns of the chest and abdomen. The injury to the arm in the latter case, as well as the burn, was caused by an explosion of gunpowder. In the treatment of amputation wounds I have tried many experiments, with the object of devising a trustworthy, cheap, and easily prepared antiseptic dressing. A good number of my experiments have succeeded, the wound healing by immediate union or by first intention; some have, however, failed. When sufficient materials have accumulated I shall communicate a paper with the results of my experience. I may say here, however, that the antiseptics which I regard with most favour at the present moment are corrosive sublimate and iodoform.

Lithotomy and Lithotrity.—Lateral lithotomy was performed twenty-six times during the year; seventeen of the patients were from fifteen to sixty years of age, the majority ranging from eighteen to twenty-five. Nine cases were children from three to fourteen. Of the adults two died, one aged sixty from kidney disease (cystic kidney), the other, a young man of eighteen, from exhaustion. In the latter case the symptoms had existed from childhood; the stone was large and the bladder much diseased, while the patient himself was ill-developed, more indeed like a child of ten, and was worn out by pain and irritation. One child died of small-pox, contracted when nearly convalescent after the operation. Nearly all the calculi were lithic acid; the largest weighed five ounces and nine grains, and the patient made a good recovery. The suprapubic operation was found necessary in one case, a very small, ill-developed girl of six. The stone, a large and very hard lithic acid one, was actually too bulky to pass the pelvic outlet. An attempt was made to crush the stone, but it resisted our strongest lithotrites. The high operation was therefore performed, but the child died exhausted on the fourth day. Lithotrity has seldom been practised in this hospital, not at all last year. Why this should be so I cannot precisely say. Hospitals are no doubt guided much by tradition as regards treatment, and our traditions favour lithotomy. We have reason, besides, to look upon it with favour, our results for many years past having been uniformly excellent—better than lithotrity. The old crushing operation, with many sittings, was never liked by native patients. They always expect to be cured at once, and we used to find great difficulty in inducing them to submit to the necessary delay; they could not understand the reason for repeated operations. Accordingly they much preferred cutting as more expeditious and, as far as our experience went, equally safe, if not safer. Even with the single-sitting operation, which, by the way, our native patients appreciate, our experience remains the same. Of the two operations, the mortality in 1882 was actually greater for crushing than for cutting. In the present year, however, I have taken to single-sitting lithotrity in adults, and so far with most satisfactory results.

Herniotomy.—This operation was performed on nine occasions for strangulated inguinal hernia; six cases recovered, and three died. In one instance death was due to tetanus, which came on after the patient was pronounced out of danger from the operation. In a second fatal case, a man of sixty, the gut was gangrenous, and, although the patient survived for nearly three weeks, he eventually succumbed to exhaustion. The third death was due to exhaustion, the patient being almost moribund at the time of operation. Cases of strangulated hernia, when operated on in time, do surprisingly well here. Could patients be only induced to come early enough for treatment the mortality would, I am convinced, be very small. In my experience peritonitis, even in the worst cases, is very rare; and a reduction without opening the sac is quite exceptional. As a rule, we now ligature and remove the sac. The radical cure of hernia by ligature and excision of the sac, with closure of the external ring by silver sutures, was undertaken in three cases; two of these were successful, and the third died of tetanus when well advanced towards recovery. The isolation and removal of the sac is one of the most troublesome operations I have performed.

Sixteen large tumours were removed, amongst them two scrotal ones. Neither of the latter was very large, and both cases did well. As compared with its frequency in Calcutta, the disease on this side of India is very rarely met with. There was nothing very remarkable about any of the others, with one exception, that of a sebaceous tumour of the scalp, which was large enough to hang down between the shoulders. Amongst miscellaneous operations, external urethrotomy was performed on three occasions, with successful results; castration, twice for cystic testicle and twice for hæmatocele; tracheotomy three times; and the penis was thrice amputated for epithelioma. In two of the latter cases the disease was so far advanced as to necessitate the removal of the whole organ. In one of them the scrotum was involved, and this, with both testicles, was also removed. The urethra in each case was fixed in the posterior angle of the wound, just in front of the anus, and with highly satisfactory results. Abdominal section was once performed for intestinal obstruction, supposed to be caused by the pressure of a large solid ovarian tumour on the ascending colon. The real cause of obstruction, however, was found to be a cancerous growth, involving the cæcum and ascending colon. This was removed and an artificial anus made, but the patient quickly succumbed. There was a large solid ovarian growth on each side. The case was in charge of my colleague, who will no doubt in time publish the particulars. During the year I met with one case of epithelioma of the upper lip in a woman.

Minor Operations.—Our hospital practice in this department of surgery is not inconsiderable. Last year, for example, there were 550 abscesses incised, 346 hydroceles tapped, forty-six fingers and toes amputated, thirty-seven circumcisions performed, and 1391 teeth extracted. Many other operations, too numerous to mention, were also done. As regards hydrocele, the treatment by injection of tincture of iodine is still successfully followed here; it is, at least, an exceedingly rare occurrence for one of our patients to present himself for a repetition of this treatment. Most of the minor operations are done by the senior students under my superintendence.

A word or two about *Anæsthetics.* Here we invariably use chloroform. It is administered on an average 500 times yearly, and, as far as I have been able to discover, we have not to record a single death against it. I have seen, however, more than one narrow escape. No apparatus is employed; it is given from a cone of lint held over the mouth and nose. Native patients come easily and quickly under its influence, and it is quite unusual for them to suffer from sickness after it. A few years since ether was largely tried, but had to be given up in consequence of the very severe and troublesome bronchitis which generally followed. I need hardly say that we are perfectly satisfied with chloroform and with our method of administration.

This short and imperfect account of a single year's surgical work in an Indian native hospital will at least show the profession at home that we are not idle, nor, in spite of many drawbacks and difficulties, I may venture to add, unsuccessful. There is here a large, and to a great extent unworked, field for scientific investigation and experiment, and my only regret is that, from causes unnecessary to mention, we have been able to accomplish so little.

ON the 31st ult. the Colchester new main drainage works, which have just been completed, were handed over to the Mayor of the borough, and accepted by him on behalf of the corporation. They have been constructed at a cost of £55,750.

A CASE OF

SYPHILIS, AND SOME OF ITS EFFECTS.

TWO CASES OF INFECTION THROUGH THE FŒTUS, AND LOCOMOTOR ATAXY.

BY THOMPSON FORSTER, M.R.C.S., L.S.A.,
FORMERLY HOUSE-SURGEON TO THE MANCHESTER ROYAL INFIRMARY.

L. J. F——, a dark, phlegmatic, temperate man, aged thirty, of gentle disposition, fair intellectual power, and highly moral, excepting for a short time, sought advice in September, 1862. He had a small hard chancre, which was followed by enlarged hard glands in the groin. He remained in this condition for some weeks, when the glands gradually resumed their normal condition. In January, 1863, he suffered from slight sore-throat. The local treatment consisted in the application of nitrate of silver; mercury and iodide of potassium were prescribed, which were continued for four months, long after all symptoms of the disease had disappeared. From 1863 until the spring of 1882 he had no symptoms of syphilis. In January, 1865, he married a very healthy, strong girl. In April she had sores on the vulva, aborted in May, had ulcerated sore-throat, and was covered with a copper scaly rash. In May, 1866, a seven months' child was born, with dry wrinkled skin, and soon after had sore mouth, coppery rash, rough skin, snuffles, &c., and died in ten weeks. The mother gradually acquired, and continued to have, fair health, until May, 1868, being then pregnant, when she was suddenly seized with difficulty of breathing, and died before any medical aid could be obtained.

In May, 1872, L. J. F—— married again. His second wife was also a very healthy girl. She became pregnant in June, suffering from copper rash, debility, loss of flesh, and miscarried in November. The child lived a few hours only, was shrivelled, small, and apparently diseased. The mother recovered slowly, but did not become pregnant for some years. After consultation, although the opinions were opposed to it, I put her under a course of mercury and iodide of potassium in 1876, as well as her husband, for over two months. They both regained good health. In 1877 she became pregnant a second time, and in July, 1878, a healthy eight months' child was born. In January, 1879, she again became pregnant, a healthy child being born at full time in March, 1880. In January, 1881, L. J. F—— had a fall, the effects of which he felt for a time, and then they passed off. In the spring he began to show symptoms of locomotor ataxy; in the following winter numbness of the end of the thumb and finger, hesitation in speech, slow walk, loss of knee action, &c., were well marked. The symptoms rapidly increased in intensity, and he died in the autumn, after having suffered very severely from delusions. It was very difficult to make his immediate friends understand the gravity of the case. At a consultation in the spring the prognosis was rapid increase of disease and probable death.

Remarks.—I think this case worth recording from the length of time it was under observation and the many interesting points exhibited—namely, the effects of the mercury and iodide of potassium; the infection through fœtus in both cases, though modified in the second; the caution necessary in giving an opinion as to marriage after syphilitic infection; the curious way that L. J. F—— remained healthy personally as far as could be seen for the long period, yet infecting two others at different periods; his attack of locomotor ataxy and death, in spite of free treatment with mercury and iodide of potassium. During the case two physicians and one surgeon, very eminent in London, were consulted.

A NEW METHOD OF TREATING SPRAINS.

BY THOS. L. SHEARER, M.B., C.M. EDIN.

EVERYONE who has had sprains to treat in practice must have been at times annoyed by the slowness of recovery of the injured part. This is not so important in hospital patients, many of whom, enjoying the life diet &c. of these institutions, do not object to prolonged treatment; but in the wealthier classes in private practice the surgeon must often hear complaints that the injury is so long in recovering. I have had a considerable number of sprained limbs to treat, and, after employing the usual plans of treatment, was led to adopt a new agent—clay. The clay is simply that used for making bricks, free from gravel, dried, and finely pulverised in a mortar. The powdered clay is mixed with water so as to form a thick and moist consistence. This is spread on muslin to the depth of a quarter of an inch, and applied entirely around the part. Over this is placed a rubber roller bandage, just lightly enough to keep the dressing from shifting and to retain the moisture. At the end of twenty-four or thirty-six hours the dressing must be renewed. It may be well to relate a few cases by way of illustration.

CASE 1.—Mr. T——, aged fifty-eight, was thrown from his carriage, and in addition to other injuries, received a severe sprain of his ankle, completely incapacitating him from motion of any kind. The part was hard, swollen, intensely painful, and throbbing. The dressing, as above described, was applied, and in twenty-four hours the pain was almost entirely gone, and the swelling to a great degree had subsided. The dressing was renewed daily, and in eight days the patient was going about attending to his business. The part was free from pain and natural in every respect.

CASE 2.—Mr. McC——, aged sixty, slipped and sprained his ankle so severely as to confine him to bed. The treatment was the same as that employed in Case 1, and the patient was out and walking in the streets in ten days.

CASE 3.—Mrs. A——, aged seventy-four, in stepping from her carriage missed her footing, and twisted her left knee violently. In a few hours the part was greatly swollen, hot, throbbing, and painful; the least motion of the joint caused excruciating agony. Pressure over the ligament was especially painful. Next day I saw the patient, and applied the clay dressing. The day after the patient was much easier, the swelling rapidly subsiding. The pain was almost *nil*, and movement of the part was not followed by such distress. The lady was walking in her house in ten days after the injury.

Dr. Hewson, of Philadelphia, about ten years ago introduced earth as a means of treating fibroid tumours of the uterus, and also sprinkled burns with the dry earth, claiming that the tendency to deformity in the latter cases was lessened. However, I am not aware of sprains being previously dressed with clay, and it was thought as well to lay the efficacy of the method before the profession. A number of other cases could be cited, but they would simply be a repetition of those already mentioned. While speaking of clay, it would, perhaps, not be amiss to state that the powdered dried earth sprinkled on the surface of an ulcer, and adhesive straps applied over it, is a capital dressing for cases which are so weak that even the weakest ointments tend to break down the granulations.

Baltimore, U.S.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nullaautem estalia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Prooemium.

ST. THOMAS'S HOSPITAL.

BONY ANCHYLOSIS OF LOWER JAW; REMOVAL OF A WEDGE-SHAPED PIECE OF BONE ON EACH SIDE; RECOVERY, WITH GOOD MOVEMENT OF JAW.

(Under the care of Mr. SYDNEY JONES.)

FOR the following notes we are indebted to Mr. W. H. Battle, surgical registrar.

T. A. H——, aged eighteen, was admitted on Nov. 22nd, 1883. Family history and previous history good. When between two and three years of age patient fell from a window on to a stone pyramid. The medical man called in did not say for certain whether the jaw was broken or not, but treated the case as if it had been a fracture. When the bandages were removed it was found that the lower jaw was fixed and the patient was unable to open his mouth; there was, however, a small interval between the teeth in front, and this, it would seem, was maintained by corks in the course

of treatment. Nothing more was done until the boy was about seven years old, when he was weekly put under chloroform and his jaws were separated a little each time, and boxwood plugs placed between them in the intervals. This treatment was continued for two or three months, at the end of which time the jaws were separated about half an inch in front, and the upper and lower back molars were just separated, but no more. The boy was, however, quite unable to move the jaw. He discontinued the use of the plugs after about another month, and the jaws gradually began to close again from behind forwards. Six months before admission the bicuspids were separated by about one-eighth of an inch, but afterwards quite closed. About three weeks before admission patient had some severe aching pain extending down the regions of the ascending rami of the jaw, lasting for two or three days, at the same time he noticed that several small pieces broke off his molar teeth; but he had noticed this before the pain, and the same thing occurred a week before admission, when he had a second attack of pain. His lower jaw had not grown in proportion to the rest of the face, and in consequence it appeared to recede more and more as the upper part of the face developed. Latterly he had taken nothing but liquid food, but when taking solid food he used to rub it between the tongue and the teeth or hard palate.

On admission it was noted that the patient was well nourished, but with a very small chin, and the lower jaw small, out of proportion to the face. He complained of inability to open his mouth. The lower jaw was firmly fixed, and no movement of it could be obtained. The upper incisor teeth projected about half an inch in front of the lower ones, leaving an opening through which the patient took his food. On the right side the upper canine teeth projected in front of the lower ones. The first upper bicuspid was wedged between the lower canine and first bicuspid, and seemed to be perfect. The second bicuspid was similarly wedged between the two lower bicuspids, but the greater part of the crown was gone. Behind this there were no teeth in either jaw, the gums being closely approximated as far back as the alveolar processes of the jaw extended; behind the alveolar processes an interval was present. On the left side the upper canine was free and some distance in front of the lower one; the lower canine was wedged between the two upper bicuspids, and all these teeth seemed to be entire; behind these there were what appeared to be two other teeth, but whether belonging to the upper or lower jaw was not apparent. As on the right side, the gums were closely approximated, and where the alveolar processes ended a similar interval existed. The two lower central incisors were absent, having been removed whilst the patient was formerly under treatment. Over the chin there was a linear scar, marking the position of the wound received at the time of the accident. On passing the finger backwards along the lower border of the jaw a notch could be felt at a point which corresponded to the junction of the horizontal and vertical portions, the latter projecting downwards a little. There was some pain on pressing over the right tempore-maxillary articulation. Otherwise the patient was healthy.

On Dec. 12th, the patient having been put under the influence of an anæsthetic, Mr. Sydney Jones, after removing some of the teeth to facilitate the introduction of the lever between the jaws, cut down on the tempore-maxillary articulation on the right side by means of an incision an inch and a half in length, and just below and parallel to the zygoma. In cutting down to the bone several vessels were divided and ligatured. After division of the masseter muscle the periosteum was separated from the bone; the condyle being firmly anchylosed to the zygoma and temporal bone, and quite immovable. A triangular wedge-shaped piece of bone, the base of the wedge being behind, was removed from the condylar process by means of the saw. The lower jaw was then found to be movable to a slight extent, and after the introduction of a lever between the jaws, the interval, which had only been half an inch, was increased to one inch and a half. The lever was then placed between the jaws on the left side, and they were likewise found to be capable of separation. On this account operation on the left side was postponed. A drainage-tube was inserted, the wound closed by interrupted silk ligatures, and dressed with iodoform dressing. Next day the patient complained of pain in both tempore-maxillary articulations, but was otherwise comfortable. Morning temperature 98°; evening 101·4°. On the afternoon of the 14th some slight forcible movement of the jaw was made, and after that, until the 18th, there was a pretty constant oozing of blood from the wound; on that day two of the stitches were removed, and the wound was injected with iced carbolic solution, iced carbolic solution being used also as a dressing. As this did not arrest the hæmorrhage, the remaining stitch was removed on the 19th, and the wound was thoroughly cleansed with iodoform. Before the wound was cleansed the temperature on several occasions had been above 100°, though not higher than 100·8°. On the 17th the patient spat some blood, but on that day only, and there was no clear evidence of its source. On the 20th there was a good deal of pus of a brownish colour, without odour.

From this time the progress was satisfactory; the wound gradually closed with diminishing discharge, and after about a week the patient was able to move his jaw voluntarily, though with some pain in the tempore-maxillary regions, greater on the right side. Chlorinated soda lotion was used as a dressing, and strapping to approximate the edges. At noon on the 21st the temperature was 101·2°; in the evening 100·4°. On the 22nd and 23rd, in the evening 100°. With these exceptions it had been normal or subnormal.

On Jan. 14th, 1884, the wound was completely healed. There was no pain on movement of the jaw, but the range of movement not having been so well maintained as the patient wished, it was decided to operate on the left side. The patient having been again anæsthetised, Mr. Sydney Jones proceeded to perform an operation on the left side similar to that which he had previously done on the right. In making the incision several small vessels required ligaturing, and on separation of the periosteum a similar condition of anchylosis was disclosed. By means of a saw and a bone forceps, a wedge-shaped piece of the jaw-bone was removed, with the effect that the jaws could be separated much more widely than had before been possible, and this opening was further increased by the use of the gag. The wound was closed with silk interrupted sutures, a drainage-tube inserted, and dressed antiseptically.

The patient had a good deal of pain for several days after the operation, and his face swelled much on the left side. On the 19th the stitches were very tense and there was some distension of the wound, which was filled with clot and slightly offensive in odour; there had been a good deal of oozing. Iodoform dressing was applied. The temperature on the 17th and 18th varied from 98·4° to 101·6°. On the 19th the morning temperature was 97·2°, evening temperature 99·6°. Slight oozing continued until the 21st. On the 25th the wound was looking healthy and the surrounding inflammatory swelling was much diminished. The jaw could be moved much more than before operation and without pain. There is slight displacement of the jaw to the right side. By the 31st the swelling of the face had disappeared and the wound was rapidly filling up.

From this time the patient frequently separated his jaws with the handle of a spatula. By this means the range and movement had increased. On Feb. 9th movement was entirely vertical and to the extent of about an inch, no lateral movement being possible. The masticating power was rather feeble, but this also had shown improvement, and the wound had healed. After Jan. 19th the temperature did not exceed 99·8°.

GUY'S HOSPITAL.

TWO CASES OF LUPUS; SCRAPING AND APPLICATION OF CARBOLIC ACID.

(Under the care of Mr. BRYANT.)

CASE 1. *Lupoid Papilla of Nose; Scraping and Application of Carbolic Acid; Cure.* (From notes by Mr. Sandol.)—W. S——, aged thirty-two, a soldier in the Life Guards, was admitted on March 7th, 1883. His mother died of cancer. Patient had had gonorrhœa, but not syphilis. He had recently returned from the Egyptian campaign. He first noticed two warts, one situated on the upper third of the bridge of the nose, and the other on the inner side of the nose. These first appeared three months before admission, and in boxing the warts got frequently knocked off, and ultimately an ulcer formed. On admission there was an irregular pinkish-looking papilla on the inner left side and upper third of the anterior surface of the bridge of the nose. This was covered with dry scaby crusts. Under chloroform the papilloma was scraped with a scalpel. There was very little bleeding, which was quite stopped by carbolic

acid applied on little bits of lint. The nose was dressed and the surrounding parts washed with glycerine. Under the microscope sections of the material showed slightly enlarged papillæ covered with a somewhat thick layer of cuticle. All the tissue beneath the *rete* layer was thickly infiltrated with granulation tissue, especially round and between the vessels of the corium. It was indistinguishable from a well-marked case of lupus. The enlargement of the papilla was not at all a marked feature. On March 26th the patient left the hospital with the wound healed, except a spot about the size of a pea.

CASE 2. *Lupus of Face and Left Forearm; Scraping and Application of Carbolic Acid; rapid Convalescence.* (From notes by Mr. Fowler.)—Charles A——, aged fifteen, was admitted on Sept. 6th, 1882. His family were healthy. Two years ago he first noticed some little boils on the right side of his face; they spread quickly to the other side. He was in the London Hospital, where something was done under chloroform, and he was discharged cured. The disease returned, and he had been an out-patient to the London Hospital. On admission the patient had lupus of the face. The disease covered the nose, which was much flattened. It had spread thence symmetrically over both sides of the face, reaching down as far as the hyoid bone. On the right side it extended a short distance between the lobule of the ear and the mastoid process, and on the cheek reached up to the outer canthus, opposite which there was a large elliptical scab about an inch across. Opposite the angle of the lower jaw there was another smaller scab. On the left side it did not extend quite so far behind the ear or on to the forehead. There was a very small part on the chin free from disease, and on this was a small scab about the size of a pea. The angles of the mouth were rounded, the upper lip was everted, and the mucous membrane resembled the neighbouring skin, being whitish and shining. The lower eyelid was everted. The disease was marked by a well-defined red and swollen border. On the back of the left hand was a circular patch of granulation tissue, which was beginning to heal in the centre; it extended to the outer border of the hand and along the little finger as far as the first inter-phalangeal articulation, and along the ring finger for some distance. The metacarpo-phalangeal joint of the ring finger was destroyed, but movement was still left. The metacarpo-phalanx was destroyed, and the finger much thickened at its base. On the left forearm was a raised ring of granulations running round the wrist. On the arm was another patch. On the 12th, under chloroform, the left half of his face was scraped, and afterwards touched with pure carbolic acid and dressed with compound tincture of benzoin. On the 26th the right half of the face was similarly treated, but acid nitrate of mercury was used instead of carbolic acid. On the 29th the part touched with nitrate of mercury had sloughed. Part of the slough was removed. On Oct. 5th, on each side of the face and just below the zygoma was a long triangular raised area of granulation tissue; the granulations were red, uniform, and healthy. The nose and adjacent part of each cheek were covered with cicatricial tissue. The hand, forearm, and arm were about the same as when admitted. The wounds were dressed with cod-liver oil. On the 12th he was discharged. A fortnight later the wound on the cheeks was gradually cicatrising.

Medical Societies.

ACADEMY OF MEDICINE IN IRELAND.

A MEETING of the Surgical Section of the Academy was held on May 9th.

The following living specimens were exhibited:—Two cases of Excision of the Knee, in youths aged eleven and thirteen years respectively, by the President; cases of Amputation at the Hip-joint, by Mr. Stokes and Mr. O'Grady. Card specimens were shown by Mr. Colles, Mr. Stokes, Dr. M'Ardle, Mr. Kendal Franks, Mr. O'Grady, and Mr. L. H. Ormsby.

Mr. L. H. ORMSBY read a paper on Acute Traumatic Malignancy, and detailed the history, progress, and result of four instructive cases in connexion with the subject. He endeavoured to prove that a distinct clinical set of malignant tumours rapidly following local injury might be classified under the term "acute traumatic malignancy," believing, as he did, that occasionally, under the stimulus of severe local irritation, the tissue elements, which under favourable circumstances would assume only the necessary activity for healthy repair, might take on a more prolific cell formation, ending in a very rapid development of malignant disease belonging to either the group of sarcomatous or carcinomatous formation. In his opinion, however, local irritation was not alone sufficient to account for the rapid development of such tumours, but it was an important factor when there was already an inherent tumour-forming diathesis present in the constitution and the local irritation or injury was accidentally received.—Mr. THOMSON, referring to the clinical aspect of the cases, said, if an operation were required at all, it should be done at such a distance from the seat of the disease as would render the return of it as remote as possible. In the great majority of those cases the disease returned sooner or later. That evening was exhibited a case in which Mr. Stokes had nearly three years ago performed amputation of the hip-joint with satisfactory result. The patient had been suffering from one of these tumours consequent on an injury to the thigh. After consultation the limb was amputated. Though the patient was in an extremely low condition, the result was satisfactory, and so improved did he now appear that there was no indication of a return of the disease. When the tumour existed in the tibia, the question was whether the patient should be subjected to amputation at the hip-joint or merely amputation through the shaft of the femur.—Mr. ORMSBY, in reply, said that the object to be aimed at was to go as high as possible above the seat of the disease. He had amputated at the upper third of the thigh, being afraid of subjecting the patient to the risk of amputation at the hip-joint.

Dr. E. H. BENNETT read the notes of a case of Excision of the Knee, having exhibited the patient at a previous meeting. The child, a girl, is now ten years old, and a period of nearly two years has elapsed since the operation. From early childhood she suffered from disease of the knee, which had led to suppuration with open abscesses. These healed, leaving the knee bent. She was then able to move about, although very lame, until six months before her admission to Sir Patrick Dun's Hospital, when the disease became re-established, and she could move only with the help of a stick, being unable to bear weight on the joint. Then sinuses appeared, and the child's health began to fail. The ordinary operation was performed, a great deal of bone being of necessity removed. The limb was placed in a plaster-of-Paris bandage, and the wounds closed, but the bones failed to unite. After seven months' treatment health was restored, and the limb could be flexed to a right angle, while the girl could stand on it without other support. She walked with trivial lameness, and could go up and down stairs without any difficulty.—Mr. THORNLEY STOKER said the best tribute he could pay to Dr. Bennett's observations would be to endeavour in his next case of excision of the knee to obtain a movable joint or a movable limb without a joint. He asked whether it was from theory or experience that the sections through the tibia and femur were made. It seemed better to fashion the surfaces so as to resemble naturally the upper surface of the tibia and the lower surface of the femur.—Mr. CORLEY thought that success in excision of the knee-joint depended on securing immobility, and on the apparatus employed for that purpose. If fibrous union could be secured without endangering the patient's chance of life, the proposed procedure would be justifiable, but the evidence would not justify their looking for a rigid limb.—Mr. THOMSON contended that the force of Mr. Corley's objection depended upon whether or not the wound was suppurating. Given a wound without suppuration, union almost immediately ensued. If the cut surfaces of the bones were closed in and the wound made subcutaneous, he saw no danger from commencing passive motion of a mild character at an early period. There was nothing impossible in looking for a movable joint, the surfaces being fashioned to resemble the original surfaces.—Mr. ORMSBY attributed the result more to good luck than good guidance. If passive motion were set up too soon in strumous subjects, the end would be amputation. At the same time he did not see why there should not be motion in the knee-joint as well as in the elbow-joint following resection.—The PRESIDENT, having seen the case, said the child had an admirable limb. He had at present a case of fibrous union. He would not set up passive motion, fearing the result would be amputation; and he agreed with Mr.

Corley that he would not look for fibrous union, but would endeavour to obtain bony union, in which he had been successful.—Dr. BENNETT, replying, said he had attained his object in raising the question whether in dealing with excisions of the knee it was good surgery to have two strings to one's bow, rather than be bound down by the rigid rule of osseous union. He had not considered the question of shaping the surfaces. Leaving the patella he regarded as a source of danger, a focus of disease; but he would leave the tendon intact. The cases requiring the strictest rest were those rare ones of acute disease. The more suitable cases for excision of the knee-joint were those in which the disease had passed the acute stage, and where deformity existed, and for that class he would obtain a movable joint.

Dr. EDGAR FLYNN read a paper on Acute Traumatic Tetanus, and brought under notice a case which had been treated in St. Michael's Hospital, Kingstown. It was that of a labourer who had the middle and ring fingers of his right hand severely crushed. Symptoms of tetanus presented themselves on the fifth morning after the accident. The treatment relied on was half a grain of cannabis indica in the form of pill every second hour, with a mixture of twenty grains each of hydrate of chloral and bromide of potassium every fourth hour, to relieve the severity of the tetanic spasms. Inhalations of nitrite of amyl were used with very marked relief. Nutrient enemata, consisting of brandy, beef-tea, and opium, were given twice a day. Hypodermic injections of morphia were frequently given during the progress of the case, more especially at night. An ice-bag was applied to the spinal column. The patient underwent all the symptoms of acute traumatic tetanus in a marked form. He left the hospital six weeks and a half after receipt of the injury in good health, but very much emaciated.—Dr. F. A. NIXON mentioned an acute case in Mercer's Hospital, where the brother of the notorious Joe Brady, having suffered an injury to his foot and had his great toe amputated, recovered after a severe struggle for life.—Dr. M'ARDLE drew attention to five cases, two that were cured under Dr. Mapother's care and three fatal under his own. Dr. Mapother had administered thirty-grain doses of hydrate of chloral per rectum. In experimenting on the lower animals he used the electric current, and when applied from the nape of the neck to the middle of the lumbar region the spasms ceased. In his own cases the disease came on in one, two, and four days respectively after the injury.—Mr. THORNLEY STOKER'S experience was that nearly every case of tetanus occurring within eight or ten days after the injury died, and nearly every case that occurred twelve or fourteen days after the injury got well. He knew of no treatment that did any good in the acute stage.—Dr. M'ARDLE mentioned a case in which tetanus came on two months after the injury.—Dr. DOYLE said he had been called to see a case pronounced colic, but which he recognised as well-marked tetanus, and found that it arose from a neglected ulcer on the leg. Iodoform applications effected immediate improvement. Hydrate of chloral and bromide of potassium were administered in ten or fifteen grain doses every half hour, with or without morphia. The patient did remarkably well, and recovered.—Dr. BENNETT observed that where tetanus occurred two or three days after the injury, the cases were fatal; but where it did not, the disease must be subacute, and there was a fair chance of recovery. Where the wound was open, tetanus might at any time supervene. He had seen it occur in a case of compound fracture of the finger two months after the injury.—Mr. CORLEY commended Prof. Smith's classification—hyperacute, acute, and chronic. In the first the disease was immediate, and invariably fatal; the acute cases occupied the boundary line; and the chronic usually recovered. No doubt cases had recovered by nerve-stretching, but there was nothing more unphilosophic than stretching a nerve to cure disease of the spinal cord.—The PRESIDENT said the longest duration of any case he had seen was seventeen weeks, and the shortest was forty-eight hours. He had seen fatal cases of tetanus following burns thirteen days afterwards. In the case of a young girl in the City of Dublin Hospital during signs of tetanus, the treatment consisted of belladonna, hydrate of chloral, bromide of potassium, and ice to the spine; but as she was growing worse and dying, he stretched the median nerve, and the spasms ceasing, she recovered. In Dr. Flynn's case nerve-stretching had not had a trial, as both the great sciatic and anterior crural nerves ought to have been stretched.—Dr. FLYNN said the great sciatic nerve was stretched.

Reviews and Notices of Books.

The Elements of Physiological and Pathological Chemistry. A Handbook for Medical Students and Practitioners. By T. CRANSTOUN CHARLES, M.D., Lecturer on Practical Physiology at St. Thomas's Hospital. London: Smith, Elder, and Co. 1884.

THE interest taken at the present time in animal chemistry, as regards its relation to both the normal and morbid processes occurring in the body, is shown by the numerous works on the subject that during the last few years have been brought before the notice of the profession. Twelve years ago no work in the English language existed in which the various operations required for the separation of the products of the tissues and fluids of the body were succinctly described. The only works then available for the student were Day's Physiological Chemistry and the translation by the Sydenham Society of Neubauer and Vogel's work on the Urine. The former of these, however, merely gave an account of the chemical processes carried on in the economy, and no attempt was made to describe the procedures necessary for the analysis of the tissues, fluids, &c.; whilst Neubauer and Vogel's work was limited to the qualitative and quantitative examination of the urine. The first systematic work on physiological chemistry, which endeavoured to meet the want felt for a simple and comprehensive laboratory guide for the study of this subject, was supplied by Dr. Ralfe early in the year 1873, in his book entitled "Outlines of Physiological Chemistry," which was followed a few months later by the larger work edited by Prof. Burdon Sanderson, assisted by Prof. Klein, Prof. Michael Foster, and Dr. Brunton, and which is known as the Handbook for the Physiological Laboratory. In 1880 Professor Gamgee published the first volume of his work on Animal Chemistry, a work which is not only a laboratory guide, but also deals in a most thorough manner with the chemical processes of the organism, and which, when concluded, will be undoubtedly the most complete treatise on the subject in the English language. In the work now under notice, Dr. Charles presents us with an outline of the most important branches of physiological chemistry, as considered under the heads of Nutrition and Foods, Digestion and the Secretions concerned, the Chemistry of the Tissues, Organs, and remaining Secretions; the Excreta, the Fæces, and Urine. Evidently no pains have been spared to render the work complete and accurate; but the author throughout seems to have been struggling with the difficulty of writing for medical students and practitioners (his announced intention), at the same time seeking to make his work a standard book of reference. To us, indeed, the handbook appears of rather too advanced a character for "students and practitioners," and is likely to prove of more service to the advanced student who has made animal chemistry a special study, and who has overcome the elementary difficulties, than to one who relies on it for an introduction to this difficult and complex study. Apart from this, we can speak very favourably of the work, which will make a place for itself in the literature of the subject. One great merit of the book lies in the numerous tables of analyses and the references to German authorities, which will be found exceedingly useful to those who are making physiological and pathological chemistry a special study.

A Statistical Inquiry into the Nature and Treatment of Epilepsy. By A. HUGHES BENNETT, M.D. London: H. K. Lewis. 1884.

THIS little book is a collection of three papers which have already appeared in the medical journals during the past three years. It is a careful collection of well-recorded facts and an example of painstaking and conscientious research.

It may well come under the category of those books which Bacon thinks worthy of being "chewed and digested."

The first chapter consists of a statistical inquiry into a variety of points in the etiology and symptomatology of the disease. This is so arranged that the percentage occurrence of the different phenomena is demonstrated. The second chapter is of special interest to the practical physician, and attempts to prove by precise numerical data the influence which the bromides exert upon the paroxysmal attacks of epilepsy. This is effected in the following manner. A large number of unselected cases form the basis of the observation. The details of each of these are carefully observed and recorded. The average number of seizures per month prior to treatment are noted, and the same is ascertained after the administration of the remedies. In this way no less than 117 cases have been under observation from periods varying from six months to four years, and elaborate tables are drawn up to show at a glance the result of the treatment. The general results of Dr. Bennett's experience are as follow: 1. "In 12·1 per cent. of epileptics the attacks were completely arrested during the whole period of treatment by the bromides." 2. "In 83·3 per cent. the attacks were greatly diminished both in number and severity." 3. "In 2·3 per cent. the treatment had no apparent effect." 4. "In 2·3 per cent. the number of attacks was augmented during the period of treatment."

The author, further, has constructed a number of special tables to show that under whatever circumstances epilepsy may exist, the general results of treatment appear to be the same, and he concludes that "the form of the disease, whether inherited or not, whether complicated or not, recent or chronic, in the young or in the old, in healthy or diseased persons, appeared in no way to influence treatment, the success being nearly in the same ratio under all these conditions."

In the third chapter the question of the effects of the prolonged administration of the bromides in epilepsy is discussed. The author points out that on this subject there is much difference of opinion, and this he thinks is due to the difficulty of distinguishing between the symptoms of epilepsy itself and the effects of bromide poisoning. As the result of his own experience of upwards of 300 cases he has come to the conclusion that the dangers supposed to attend the prolonged use of these drugs has been over-estimated. He furnishes a series of 141 cases, which have been under large doses of the bromides for continuous periods, varying from one to six years. These indicate that the proportion of toxic symptoms is comparatively small, while that of cases mentally and physically unimpaired is large. The writer is of opinion that the epileptic constitution is more tolerant of the effects of the bromides than is that of the healthy subject, and that bromism is always more prominently developed in the latter. He does not hazard any conclusion as to whether these remedies will finally eradicate the disease, but states his conviction that under favourable circumstances this is not impossible.

Medical Electricity. By A. DE WATTEVILLE, M.A., M.D. London: H. K. Lewis. 1884.

NOTWITHSTANDING extensive researches and a voluminous literature, it must be confessed that the science of electricity in its relations to medicine is a subject which still remains comparatively unrecognised in this country. In other countries, especially in Germany, electricity is unhesitatingly acknowledged to be an important agent in the diagnosis and treatment of disease. Here, however, even at the present time, there is an uneasy feeling amongst the profession that there is something, as the Scotch would say, "uncanny" about the proceedings, and a lurking feeling of distrust against those who advocate its claims. A careful study of the work before us will go far towards dissipating any lingering delusions in this direction. It will indicate to the reader that, far from this being a subject easy of comprehension or capable of popular adoption, it is one of a most complicated and intricate character, and demands knowledge of the most varied and extended nature. The author, Dr. de Watteville, has for many years devoted his attention to the study of electricity in all its branches, and more especially in its relation to physiology and medical science. His labours have been conducted in the disinterested spirit of honest inquiry, and for this reason he has gained the support and confidence of his medical brethren.

The book is conveniently divided into four chapters, treating of Electro-physics, Electro-physiology, Electro-diagnosis, and Electro-therapeutics. We are glad to see that in Chapter I. the author has omitted many of the illustrations of electrical instruments, which gave the first edition too much the appearance of an illustrated catalogue. His explanation of Ohm's Law, the electrical units and density of current, is clear and concise. The importance of the use of the galvanometer, or more properly Gaiffe's modification of the galvanoscope, is thoroughly explained. The advantage to be gained by the arrangement of the elements in series or simple circuits is aptly illustrated by numerical examples. He has adopted Erb's sizes of electrodes, so that the terms fine, medium, &c., have definite meanings.

The experiments or exercises described in the chapter on Electro-physiology if repeated by the student will prove a valuable means of acquiring a knowledge of the manipulations necessary for the practice of diagnosis and treatment by electricity.

The chapter on Electro-diagnosis is a natural continuation of the preceding one, because the description of electrical reactions of normal nerve and muscle forms a suitable introduction to the study of the reactions exhibited by the same tissues in diseased conditions.

In the chapter on Electro-therapeutics, Dr. de Watteville has described the *rationale* and methods of electrisation, and he has succeeded in his endeavours to avoid excessive enthusiasm. He says "it is not so much electricity which cures as its rational and skilful application, and the often used expression 'trying electricity' conveys about as much meaning as 'trying water,' without specifying whether the water is to be hot or cold, in the shape of ice or steam, applied externally or internally, and so forth."

Dr. de Watteville censures somewhat severely those who use the term "galvanisation of the sympathetic." He considers that this "offensive expression" is founded upon "erroneous physics, imaginary physiology, and fantastic pathology." In order to remedy these evils he adopts the term subaural galvanisation. The author has also endeavoured to remedy certain "mongrel, barbarous, and ungrammatical" expressions in the nomenclature of the subject. He considers that "cathode" should be spelt with a k, and that "cathodal" should be kathodic. These changes may have some *raison d'être*, but few will care to substitute hypokinesis and hyperkinesis for paralysis and spasm.

VENTILATION OF THE HOUSE OF COMMONS.—The Select Committee appointed to investigate the causes of the offensive smells recently complained of in the House of Commons presented their report on the 30th ult. They find, after careful consideration, that the ventilation and drainage of the building are in admirable condition, but that the Westminster drain and sewer which runs from Abingdon-street to the Thames Embankment is in such a condition as to constitute a nuisance. The committee recommend that the Local Government Board should instruct one of its inspectors to examine further into the matter, and that the committee should be reappointed next session to consider the inspector's report.

BRITISH MEDICAL ASSOCIATION.

FIFTY-SECOND ANNUAL MEETING, HELD AT BELFAST, JULY AND AUGUST, 1884.

THE meeting of the British Medical Association in Belfast, which concluded last week, will long be remembered as one of the most enjoyable gatherings of that body. The members of the Association who were present repeatedly expressed their great gratification at the cordial reception they received, not only from the profession in Belfast but from the general public; while Belfast has reason to be proud not only that a local member of the profession was in the presidential chair, but that all the details of arrangements were so well carried out by the executive committee and the numerous secretaries of the various sub-committees. In THE LANCET of last week reference was so fully made to the admirable addresses of the President, Dr. Ord, and Prof. Redfern, that we need not advert to them. On Friday, the 1st inst., the

ADDRESS IN OBSTETRIC MEDICINE

was delivered by Dr. Kidd of Dublin, who said he should ask his audience to consider Puerperal Fever, mainly from a clinical point of view, referring to the laboratory experiments of scientists and pathologists to illustrate and explain the facts observed at the bedside, where alone disease can be studied. Dr. Kidd then proceeded to consider the various forms of the disease. He described the cases due to traumatic causes. He gave an account of Burdon Sanderson's researches, and said that there were two factors for the production of the poison in these cases—(*a*) the material capable of putrefaction, and (*b*) bacteria to effect putrefaction. The material capable of putrefaction is found in the shreds of connective tissue which die in the contused and lacerated wounds of the soft parts, and this is to be obviated by conducting the labour so as to lessen the amount of injury done. The access of the bacteria to the injured parts is to be cut off by cleanliness, ventilation, and disinfection. But as the germs may also come from other parts within the body to the point where the dead or dying tissue exists, and there set up putrefaction and the elaboration of the septic poison, the indication is to remove the products of decomposition as soon as possible. He then referred to another group of cases due to the retention within the uterus of organic substances, and to a set of cases due to phlebitis. The foregoing groups belong to the class Dr. Barnes calls autogenetic; but the cases Dr. Kidd next considered—i.e., epidemics—present a different clinical history, and seem to depend on entirely different causes. In epidemics the disease may manifest itself before labour has set in. It seizes great numbers at the same time; it observes cycles of development and decline, sometimes disappearing altogether for short or long periods. At its onset it proves fatal to almost all who are attacked; as it declines it becomes more mild in its character, and many of those attacked recover. In all these respects these cases resemble diseases specific in their nature and dependent for their development on the action of a specific epidemic influence. Dr. Kidd gave an account of several epidemics observed at different periods in Dublin, and arrived at the conclusion that there is a large group of puerperal cases that come strictly within the definition of epidemic disease, and that the epidemic thus constituted is a specific disease. He showed that scarlatina and other diseases may occur in the puerperal state, but they are not samples of puerperal fever. If you sow thistles you will grow thistles, and if you sow scarlatina the crop will be scarlatina. Finally, Dr. Kidd stated very fully the septicæmic theory—i.e., that puerperal fever is nothing else but poisoning with septic matter from the genital organs; but he said that this theory seemed to him defective. He sketched the very elaborate precautions which those who held this view recommend for the prevention of this disease, but he showed that the results claimed by them as due to these precautions may not be owing to these precautions alone, for the history of great hospitals, such as Vienna or Dublin, shows that puerperal fever will prevail and cause sad mortality at times, and disappear again, and that the conditions governing its movements have not yet been discovered. From 1857 to 1860, in the lying-in hospital at Vienna the mortality was slight, though disinfectants were not used, while during the three following years, in spite of the systematic and persistent employment of those agents, the death-rate once more assumed formidable proportions. Dr. Kidd concluded his admirable address, which will, we venture to think, long remain a classical paper on puerperal fever, by saying "Let us differ as to our theories as we may, we will all unite in the earnest desire that precautions may prove not only more efficient, but more permanent in their effects."

THE SECTIONS.

On Wednesday the sections all met, and at most of them there were opening addresses by the Presidents.

MEDICINE.

In this section there was a series of very interesting discussions.

1. Dr. George Johnson introduced the subject of Albuminuria in a very exhaustive address, in which he gave a general review of the condition, its consequences, and treatment, and illustrated his remarks by a series of microscopic preparations. He also demonstrated the picric acid test. Drs. Myrtle, Hadden, Thomas, and O'Connor took part in the discussion.

2. Dr. Douglas Powell gave a very elaborate address on the Causative Relations of Phthisis, in which he argued against its contagious nature. Dr. Ward Cousins, Prof. Gairdner, and Drs. Myrtle, Barr, Green, and O'Connor spoke in the debate.

3. A discussion on Rheumatoid Arthritis, opened by a paper of Dr. Duckworth's, read by Dr. Barlow, secretary of the section, was principally remarkable for the very original address of Dr. Gordon, Professor of Surgery in Queen's College, Belfast. Dr. Gordon said he had been studying this disease for thirty years, and the numerous specimens which he exhibited showed clearly the amount of close attention he had given to the subject. He believed it had no connexion with gout or rheumatism, but when it was present there were other evidences of senile changes—viz., atheroma of the vessels and fatty heart; consequently, he considered it to be a form of senile degeneration, but it was difficult to assign its exact cause. He did not think much could be done in the way of treatment; the only remedies he used were iodide of potassium and Fowler's solution. Dr. Gordon's speech impressed those who heard it as being the outcome of most careful study and close observation, and he was frequently applauded during its delivery.

SURGERY.

The opening address of the President (Sir William Mac Cormac) has already been referred to in these columns. There was a very instructive discussion on the treatment of Spinal Curvature, introduced by Prof. Sayre. A number of members followed with interesting remarks, some disagreeing with portions of Dr. Sayre's paper, while others concurred. Mr. Roth, Mr. Keetly, and other gentlemen spoke.

Among the papers read in this section we may mention that of Mr. Makins on Successful Suture of Small Intestine in a case of Fæcal Fistula; the Radical Cure of Hernia by Torsion of the Sac, by Mr. Ball; the Surgical Treatment of Hydatid Cyst of the Liver, by Mr. R. Richardson; and a paper on the Nature of Rifle-Bullet Wounds and the Principles of their Early Treatment, by Dr. Kirkes. Mr. Fagan gave a demonstration of his transport splint in the College grounds.

OBSTETRIC MEDICINE.

In this section, the President, Dr. Clement Godson, who used every exertion to make his department of the meeting a success, gave a very interesting opening address on the Surgical Aspect of Obstetrics and Gynæcology. He showed that it was impossible to practise either of these branches of medicine without "dabbling in surgery," and that it was absurd to argue that an accoucheur should be a physician pure and simple. He explained that a rule forbidding the obstetric physician to perform surgical operations existed in certain of the large London hospitals, and that, as a consequence, the obstetric staff were driven to seek appointments to special hospitals for the treatment of diseases of women to gain experience to enable them to teach in their schools.

A discussion on the Pathology and Treatment of Extra-uterine Fœtation was introduced by Mr. Lawson Tait, who came specially to Belfast for this purpose. A number of members spoke.

Dr. Atthill opened a discussion on the Treatment of

Intra-uterine Disease, with special reference to the best mode of making appliances for the intra-uterine surface. Dr. Atthill's masterly paper was chiefly remarkable for recommending the injection of iodised phenol into the uterus in the treatment of suitable cases. Papers on the same subject were also contributed by Dr. More Madden and Dr. John W. Byers; and in the discussion which ensued Drs. Kidd, Smyly, and Reid took part.

In this section the President demonstrated the plan of using his four-bladed perforator, and Dr. Kidd showed his method of decapitating the child. Several other interesting papers were read.

PUBLIC MEDICINE.

In this section, the only one to which the public were admitted, there was a great deal of work done.

The President, Dr. Cameron, M.P., delivered a very able, exhaustive, and thoughtful address on the Cholera Microbe, and how to meet it. Papers were read by Dr. Johnston on the Prevention of Epidemics, by Dr. Cullimore on Quarantine, and by Dr. Hunt (New York) on Infectious Diseases. Dr. Kirkes read a very interesting paper on the Visit of the Egyptian Cholera Epidemic of 1883 to Port Said. Prof. Charles A. Cameron (Dublin) read a paper on Inspection of Meat Markets, which excited considerable interest. The discussion on Over-pressure in Schools was closed by the President, who remarked that something might be done by legislation to prevent the evils complained of, not by cutting down education, but by placing education on somewhat more rational lines.

PHARMACOLOGY AND THERAPEUTICS.

Dr. Maclagan, the President of this newly formed section, delivered an opening address on Methods of Therapeutic Research, after which there was an interesting discussion on the British Pharmacopœia, in which Dr. Shoemaker gave an account of the state of the Pharmacopœia in America. A resolution was passed calling for an improvement and revision of the present Pharmacopœia.

The Patent Medicines Stamp Act was brought under the notice of the section by the President, and eventually the following motion, proposed by Professor Hay (Aberdeen), and seconded by Dr. Leech, was unanimously carried:—"That in the opinion of this section the Patent Medicines Stamp Act should be abolished."

Dr. Shoemaker (Philadelphia), a delegate from the American Medical Association, gave a demonstration on New Oleates; and in the discussion which followed Dr. Finny and Dr. Walter Smith of Dublin took part. There was also a debate on Antipyretics, introduced by Dr. Collie (Homerton Fever Hospital), who dwelt on Cold Baths. Dr. Quinlan followed, speaking in reference to salicin, salicylates, quinine, and kairin. Dr. Ord and Prof. Gairdner also took part in this interesting and animated debate. There was finally a debate on Aspiration as a therapeutic agent; and a demonstration of the action of certain drugs on the frog's heart. There can be no doubt that this new section was a marked success.

PHYSIOLOGY AND PATHOLOGY.

In this section Dr. M'Vail read a very able paper on the Pathology of Pulmonary Emphysema, which was criticised by Professor Gairdner and others.

Dr. Alexander (Liverpool) gave a very scholarly address in opening the discussion on the Influence of the Nervous System on Normal and Abnormal Nutrition. Numerous papers were read in this section.

OPHTHALMOLOGY.

After the President had given his opening address on Mature Cataract and its Treatment by a new Operation,

Dr. Wolfe opened a discussion on the following question:—"Does the position of the section in Cataract operations influence Suppuration of the Cornea? If so, what part is played by Septic Infection?"

Dr. Brailey opened a discussion on the Explanation of the Advance of the Iris Periphery in the late stages of Glaucoma. A number of papers were read, and other discussions took place in this section.

PSYCHOLOGY.

Among other matters of interest in this section, Dr. Hack Tuke read a paper on Alcoholic Beverages in British Asylums, in which he narrated the result of an inquiry into the use of alcohol in asylums. Several superintendents approved of beer, while many did not. Alcohol was used as a medicine only in 22 asylums in England, in 13 in Scotland, and in 15 in Ireland—50 in all. Dr. Norman Kerr said that nearly one half of the English asylums had either wholly or partially discontinued the use of alcohol; there were 63 such institutions in all, and there had been either an entire or partial reduction in 29.

THE ANNUAL MUSEUM.

The annual museum, owing to the great exertions of Dr. O'Neill, was a decided success. The purely medical and surgical exhibits were shown in the anatomical rooms, while in the gymnasium and exhibition hall of the gardens appliances relating to sanitary science and public health were to be seen. The show of drugs and instruments was very extensive, Arnold and Sons, Coxeter, Weiss, Marr, Mayer and Meltzer, Wilson and Sons (Harrogate), Allen and Hanburys, Burroughs, Wellcome and Co., Calvert, Corbyn, Stacey and Co., Essinger and Neuberger, Sanitas Co., &c., being among the exhibitors. There was some very good hospital furniture, and filters, tricycles, a doctor's gig, carriage, &c. Dr. Clement Godson exhibited a thermostatic nurse for the bringing up of prematurely born infants, an account of which appeared recently in our columns. This apparatus excited great curiosity, and its mechanism was frequently explained by Dr. Godson to visitors to the museum.

LAST GENERAL MEETING.

At this meeting, after the adoption of various reports, special votes of thanks were passed to the President of Queen's College for allowing the use of the College for the meetings; to the Mayor; to the members of the Belfast and North of Ireland Branch, and the inhabitants of the town and neighbourhood; to the National Telephonic Company; to the honorary secretaries and others who had assisted in the entertainment of the members; and, lastly, to Dr. Cuming, the President of the Association.

The annual dinner was held in the Examination Hall of Queen's College, Professor Cuming presiding, on Thursday evening, July 31st; while on the Friday night the Mayor of Belfast, Sir David Taylor, gave a very brilliant reception in the Ulster Hall, at which there was a very numerous attendance. Dancing was commenced at half-past ten, and was continued into the early hours of Saturday.

On Saturday, which was a beautiful day, there were three excursions—one to the Giant's Causeway (at which there were between two and three hundred), another to Garan Tower, and a third to Newcastle.

The numerous social reunions have been a marked feature of the Belfast meeting. There were garden parties, "at homes," and other entertainments, to which the members of the Association and their friends were freely admitted.

"THE WASTE OF THE PROFESSION."

To the Editor of THE LANCET.

SIR,—Without attempting to guess what the average annual waste of the profession may be, permit me to point out a waste that has not been referred to either by Sir Lyon Playfair or by you. I mean the large loss caused by the retirement of medical men from active practice on account of age, ill-health, or other causes, and whose names would not of course figure in the annual return of deaths. I have no idea what this waste is, but no doubt it is considerable. Perhaps some of your correspondents could enlighten me; for so far as the public are concerned, it is a very important matter to know.—I am, Sir, yours, &c.,

T. F. O'DWYER, M.D.,
Surgeon-Major, Army Medical Department.
Junior United Service Club, August, 1884.

*** We quite agree with our correspondent that the mere deaths do not express the whole loss of active members of the profession in any year; but it requires little knowledge of either the circumstances or the disposition of medical men to be convinced that the number who retire is a comparatively small one.—ED. L.

THE Local Government Board for Ireland have sanctioned an increase in the salary of Dr. Agnew, of Lurgan Dispensary, by £20 yearly.

THE LANCET.

LONDON: SATURDAY, AUGUST 9, 1884.

THE meeting at Berlin, on the 23th ult., of many of the leaders of our profession, including such men as Professors VIRCHOW and HIRSCH, to discuss the subject of cholera, and to listen to the history of his work by Dr. KOCH, is an occasion of more than passing interest. The conference and the masterly address with which it opened may almost be said to mark an epoch in the history of this disease. At a time when all Europe is alive to the subject, and when fears of a general epidemic are aroused, the demonstration of what promises to be a very fruitful discovery comes most opportunely. Without entertaining too sanguine a view, it is surely something to know that the methods of rigid investigation that have been so successfully applied to elucidate the nature of infective disease have been carried out so far with equal success in the case of cholera. It brings forcibly to mind the manner in which, from henceforth, all such diseases must be studied; their intimate nature must be made clear to us before we can hope to cope with their ravages. In the portion of his address yet published, the substance of which will be found elsewhere, Dr. KOCH has not approached the subject of the practical application of the gains to knowledge he has obtained. All will concur with his opening statement that without a sound basis of the knowledge of the essential nature of cholera all therapeutic and prophylactic efforts are vain—a truism too often disregarded even in these enlightened days! The work, in which KOCH himself has been one of the pioneers, that signalises the past decade has yet to bear its legitimate fruit in a rational treatment and a systematised attack against the conditions that favour the origin and spread of infective diseases; and the time will surely come when we shall no longer be content with enforcing the principles of sanitation, useful and fruitful as that labour is, but shall be possessed of measures aimed more directly against the causes of these diseases. To be sure, there are many who doubt the significance of the micro-organisms which appear to constitute the virus of so many of these diseases, and who believe that the parasitic theory is being pushed too far, blinding us to the broader features of epidemic influences. But evidence in support of that doctrine accumulates on all sides and grows stronger day by day. Mistakes, even grave errors, will often be made from lack of sufficient care in observation and experiment or from too hasty generalisation, but the main principle remains unshaken, the principle of zymosis.

Cholera is admittedly a zymotic disease, and the search after its organic germ or parasite has been carried on for more than forty years. Amongst the numerous alleged discoveries, HIRSCH mentions the "cryptogamic bodies, like ferment fungi," found by BOHM in the dejecta and intestines (1838); the "annular bodies" detected by BRITTAN and SWAYNE in the Bristol epidemic of 1849, an observation in part confirmed by HUGHES BENNETT of Edinburgh; the "vibrio-es" of POUCHET; the "cercomonas" of DAVAINE; and the "small granular bodies composed of round cells resembling the bacterium termo," discovered by PACCINI in 1854 and 1856—an observation which, like that made by Dr. BRISTOWE and referred to in his letter we published last week, most harmonises with the present discovery of KOCH. HIRSCH also refers to the observation of M'CARTHY and and DOVE, of "large masses of cellular elements endowed with active power of movement," and the memorable researches of HALLIER, KLOB, and THOMÉ, with their refutation by DE BARY and COHN, and the equally inconclusive results obtained by CUNINGHAM and LEWIS. The importance of KOCH'S discovery is heightened by these previous attempts, and the great merit of his work is the fact that he has succeeded in differentiating from among all the numerous species of bacterial life that infest the intestinal canal one characteristic and constant form. He has been enabled to present the world with so consistent an account of the life-history of this cholera microbe as to overcome the scepticism born of previous failures. He has succeeded because he has adopted the methods above referred to—methods the value of which has not hitherto been properly appreciated in the country where cholera is indigenous. The despatch by our Government to India of two scientists well versed in these methods will serve to redeem us from that reproach.

In following Dr. KOCH'S remarks one is struck by the fact that in the majority of the cases examined by him he found evidence of severe inflammatory lesions of the intestinal mucous membrane, often with hæmorrhage; and he notes the rarity with which the intestinal contents are of the watery character so marked in the evacuations earlier in the disease. By the light of his microscopical investigations, it is not surprising that the intestines should suffer such severe lesions, although the general experience hitherto has been to the contrary; for he found accumulated within the tubular glands, and beneath the epithelium, an abundance of bacilli, to which were superadded many putrefactive bacteria. However, he succeeded in isolating the bacillus, and found it in the recent stools of acute cases, and in the linen soiled by choleraic dejecta. Its characters appear distinctive; shaped like a comma, and smaller in size than the tubercle bacillus, it grows with great luxuriance, and assumes the form of a spirillum. Indeed, Dr. KOCH appears more inclined now to regard the micro-organism as belonging to the genus spirillum rather than to that of bacillus, not only on these morphological grounds, but on the facts of its life-conditions. He always speaks of it as the "comma bacillus" (he seems careful not to use the term "cholera bacillus"), and that name expresses its most constant and obvious feature. The microbe has not been found in the blood or viscera other than the intestine; a fact not only explicable of the symptoms of cholera, but of its mode of propagation by means of ingesta.

Interesting as the discovery of a special organic form is, it is far more important to know the conditions that favour or prevent its development; and this part of the subject has been very fully gone into by KOCH. It will be seen that in many respects the comma bacillus differs from other bacteria. Thus it grows and multiplies in appropriate media with remarkable rapidity, and the characters of the colonies thus formed are different from those usually observed; whilst its

behaviour in a gelatine medium is, so far as known, quite characteristic. It resists a considerable degree of cold; and although its vitality is affected by the withdrawal of air or oxygen, or the subjection to an atmosphere of carbonic acid, it appears to be not actually killed, but only rendered dormant. What, however, is of the first importance is the discovery that the comma bacillus cannot exist apart from moisture. Many bacilli when subjected to dryness still retain vitality, which is shown by replacing them in a moist nutrient medium; but this comma bacillus is actually killed outright by such exposure. It is needless to point out the practical bearing of this in the disinfection of linen soiled by the dejecta. Instead of placing such in so-called disinfecting fluids, it is enough to subject them to dry heat, for twenty-four hours at the longest. Dr. KOCH seems rather to deprecate the use of so-called disinfectants, which operate in destroying the putrefactive bacteria, but leave the comma bacillus free to luxuriate. For his observations have led him to the conclusion that the existence of putrefaction is just the condition that is most likely to arrest the growth of the specific bacillus, an observation full of suggestiveness. It would seem as if the actively growing and multiplying comma bacillus, which finds its lodgment in the intestinal mucosa, sets up those changes which prepare the way for the bacterial invasion that supplants the former. The soil is prepared for the putrefactive organisms, and the non-pathogenic bacteria enter into a struggle for existence with the pathogenic bacillus, and overcome it. If this be true, a considerable revolution will have to be made in preconceived ideas, and putrefaction will come to be regarded as opposed, and not as favourable, to the spread of cholera! We would not desire as yet to generalise so freely as this, but await with interest the further development of the problem by Dr. KOCH. His statements as to the amount of the various antiseptic agents requisite to check the development of the comma bacillus give ground for the assertion that the internal administration of such substances in cholera is beyond the reach of practical therapeutics. The amount of any of those agents that could be safely given would be far below that which could possibly act upon the luxuriant growth of the bacillus in the intestine. Such is the deduction from his research; and in its bare reasonableness it seems to overturn a host of vaunted specifics and modes of treatment, based, indeed, on the zymotic theory, but without a due appreciation of what that theory involves. It once more demonstrates that in prevention lies the main line of attack against cholera; the cure of the disease depends less upon any specific medicament than upon measures adopted to check the violence of the disease and to maintain the vital powers under its terribly exhausting effects.

WE propose to discuss briefly the important subject of reflex paralysis, on which an able paper has recently been read by Dr. NIXON before the Academy of Medicine in Ireland. As the matter is one about which volumes might be written, we think it would conduce to a better understanding of the various elements of the subject if we presented to our readers an exhaustive account—exhaustive not in the sense of abundant illustration by cases or in the employment of periphrasis, but complete so far as enumeration and exposition go of the chief views which may possibly be held with regard to reflex paralysis. It is first of all expedient to define what is meant by reflex paralysis. There would be no necessity to write this article on the subject if a perfect definition were possible, so that the reason of the lameness of the following definition may be at once apparent:—Reflex paralysis may be said to be a loss of motion or sensation in parts of the body physiologically remote from a disturbance produced by injury or disease of tissues supplied with nerves. As alleged instances of the occurrence of reflex paralysis, the following may be mentioned: amaurosis after affections of the fifth nerve; paralysis of orbital nerves following severe neuralgia of the trigeminus; paralysis of the third nerve after injury of the supra- or infra-orbital nerves; amaurosis coming on after irritation of the dental nerves; paralysis following wounds; and lastly, "reflex" paraplegia from diseases of the urinary organs, dysentery, and certain affections of the uterus. Let us take the case of paraplegia following on disease of some of the abdominal viscera and examine this combination of phenomena from every possible point of view. In doing this we think it advisable to say that we purposely avoid any typical instance of the phenomena in question, partly because we do not wish to be fettered by any subordinate considerations, and partly because we would indulge in as wide and full an examination as possible.

There can be but little doubt that in the majority of cases the paraplegia is due to an affection of the central nervous structures of the lumbar region of the spinal cord; the bilateral character of the palsy supports this view; and it is hardly likely that the nerve-trunks in their passage downwards and outwards could be equally affected. Admitting these considerations, the question arises as to how the lumbar region of the spinal cord gets damaged. The result may be brought about by the intervention of the process termed "inhibition." The simplest example we possess of this phenomenon may be inferred from an experiment on a headless frog. A bit of blotting-paper, moistened with acetic acid, placed on the inner aspect of the thigh, is soon followed by movements apparently directed to the removal of the offending paper. If whilst these movements are in progress one of the feet be tightly clamped the reflex action is done away with, is "inhibited." Here it would seem that a powerful afferent stimulus is directly able to arrest a nervous action; but we must be careful in drawing even this inference, for other explanations are possible. It may be that the stimulus acts by causing spasm of the vessels supplying some part of the reflex centres in question. So far we have been dealing with states of tissues which may be termed "functional."

The paraplegia, or rather myelitis, may be due to disease spreading along the nerves by means of mere continuity of tissue or by way of special lymphatics or bloodvessels—respectively an ascending neuritis, lymphangitis, or phlebitis. We forbear to increase the complexity of this group by further subdivision.

Again, it is conceivable that the abdominal mischief and paraplegia are merely coincident, or related only in the same way as a parent is to two children. If we may speak of genuine reflex paralysis, that term ought only to be employed to designate the loss of function which ensues when the

agency at a distance acts without producing any demonstrably structural lesion. Sir WILLIAM GULL and others have shown that myelitis and consequent paraplegia may be set up from disease of the urinary organs, apparently as the direct result of propagation of inflammatory action either along the nerve trunks or venous channels. LEYDEN has corroborated these views by demonstrating the existence of ascending neuritis in some of these cases of paraplegia. It is still a moot point whether a continuous line of inflammation along the nerve trunks is necessary for the development of myelitis. TIESLER, FEINBERG, and HAYEM found that the application of various irritants to the sciatic nerves of animals was followed by paraplegia. Suppuration existed at the site of irritation of the nerve and another abscess was discovered also at the origin of the nerve from the spinal cord; the length of nerve intervening between the foci of purulent infiltration being apparently healthy. REMAK and KUSSMAUL thought from their observations that a chronic inflammation of the nerves in the pelvis might be produced by a phlegmon in this region without any myelitis—in fact, a simple descending neuritis. The central nervous apparatus of the lumbar region may be functionally ruined by the absorption of poisons locally produced, and acting as some of the alkaloids are supposed to do, proper nutrition being impossible in the presence of altered blood. The nerve-cells may be placed *hors de combat* not only by inhibition, but also by sheer exhaustion. To use a simile, we may imagine a jug full of water, with a tightly-fitting lid, to represent a loaded nerve-cell; the "vis nervosa" therein contained may be wasted or rendered of no use by completely emptying the jug (exhaustion) or by tightly closing the lid (inhibition). Proceeding further, it is easy to understand how these states of inaction may be brought about by many means; whether these means be from structural or functional defects influencing the nutrition of the nerve-cells, it is plain that every cause must act in one of the two ways, though the degree of exhaustion or inhibition may vary considerably.

THE attention attracted to the sanitary surroundings of the schoolboy of the present day, from the elementary board schools through all grades to the higher public schools of the country, has been quickened by the important Conference which met at the International Health Exhibition on the 30th ult., as well as by the first meeting of a new Association of Medical Officers of Schools held a few days previously, a report of which appears in our columns of August 2nd. To the important bearing of this subject we have been fully alive for many years past, as the contributions in our columns testify. In THE LANCET of Jan. 21st, 1871, the following words occur, "Both at the point of departure and the point of arrival a clean bill of health should be found for the schoolboy." At each of the meetings referred to prominence was given to the necessity for parents to be perfectly candid with the heads of schools on their boys' return from any infected locality; but we fail to see that equal prominence was given to the still greater necessity for heads of schools to be equally candid when their pupils return home during the existence of any infectious malady in their school. There would appear to be some risk that the new Association of Medical Officers of Schools, in their interest to protect their individual institutions, may exact undue restrictions on the pupils' return, and fail to see that parents and the public at large have an equal right to protection from the risks of infectious maladies, engendered or contracted among pupils at school at the approach of vacation time, being spread to their homes. Already we see danger of this; hence the prominence we desire to give to it. The authorities of every school should be required to state candidly to parents whenever an infectious malady arises in their establishment; and if it should exist on the approach of vacation time, the term should be extended beyond the period of possible incubation of the disease among the pupils generally, for the protection both of their families and of the public. How can such protection be best ensured? In the first instance, parents should make it a condition on sending their boys to any school that they be informed of the occurrence of any infectious malady among the pupils, and especially so on the approach of vacation time. This should not be with a view of removing boys from the infected area, but in order to cut off, as far as may be thought desirable, communications with home and regions outside the infected locality. We fully foresee the inconvenience this may occasionally give rise to in obliging school authorities to defer vacations for a brief period when infectious illness exists among the pupils; but we hold that schools should be made no exception to the accepted rule of civilised life, that the few must submit to occasional inconvenience for the sake of the welfare of the many.

In the communication made by the resident medical officer of Christ's Hospital, Mr. ALDER SMITH, at the Health Conference, it is stated that "the most important precaution to prevent infectious disease from entering and spreading in a school is undivided medical responsibility." In this sentence we think we detect a trace of dissatisfaction at the exercise of superior authority by the head master and house masters of our public schools over the medical officer, limiting the exercise of his free judgment, and often curtailing his usefulness. That the responsibility on matters of illness and hygiene should be strictly medical there can be no doubt; but we believe there is room, nay, a growing necessity, for that most useful division which would be afforded by the appointment at all our schools of one or more medical officers to attend the sick, and a public sanitary medical officer for the protection of the school and the district around. Such a system works well at Eton, Winchester, and Rugby. At Eton any of the local practitioners are called in by the house masters at their own choice; at Winchester two medical officers are appointed; while at Rugby one is in sole charge. Yet no inconvenience that we have ever heard of has arisen from this dual and triad attendance; on the contrary, we think that occasional consultations must be beneficial at schools as in private life. Over each of these establishments the sanitary authority of the district has jurisdiction, with their sanitary medical officer as adviser, for the good both of the school and the contiguous district. We believe there will be provided in due course a much more minute supervision of our public schools by an officer of health absolutely independent of and free from the authority of head master, of house masters, and the governing authority of schools, whatever it may be;

an officer responsible to the local sanitary authority and through that authority to the Local Government Board. At no very distant time no building will be permitted to be occupied for school purposes, either private or public, which has not been inspected and approved by a public sanitary authority. We believe even more than this to be desirable in the interest of the schoolboy, and that there should be special and periodical inspections of all our schools, public and private, by officers of the sanitary department of the Local Government Board for all those functions in hygiene which are fast passing out of the sphere of the medical attendant on the sick.

DR. CULLINGWORTH, of Owens College, Manchester, calls attention to the evidence of epilepsy and the reasonable presumption of insanity in the case of JOSEPH JAMES DONNELLY, who had been sentenced to death for the murder of his sister and for severely wounding his mother, in a paroxysm of what may have been epileptic furor, and who has since been respited during Her Majesty's pleasure. We confess that it is always with suspicion we view the plea of insanity when propounded with the purpose of preventing the execution of a capital sentence. We think matters of this sort should be dealt with *finally* at the time of trial, or rather before it. After sentence has been pronounced there is so much motive for straining points in favour of a condemned murderer that a calm judgment is almost impossible. Nor do we think it expedient, in the interests of public safety, that there should be this last chance of escape open to criminals. At the same time it cannot be denied that there are instances in which there is need of revision of the decision at which a jury has arrived, and we are inclined to think this is a case in which inquiry was justified. There are, nevertheless, features in the case of DONNELLY that do not readily lend themselves to the presumption of his insanity. For example, while it is true, as pointed out by Dr. CULLINGWORTH, that the sister and mother attacked were not at the time so obnoxious to him as was his father, it cannot be forgotten that the sister had just refused to get him some water to drink, and, for the moment at least, she may therefore have been the object of his special animosity. It is necessary to bear in mind that in the most clearly marked cases of epileptic mania, there is generally an entire absence of motive or cause of quarrel! The maniac without preparation instantly attacks the nearest person, though he be his dearest friend.

There is, of course, a well-known class of cases in which the epileptic is simply irritable and quarrelsome, and liable to be strongly excited by the slightest provocation; but with regard to the irresponsibility of a person excited, even though there be disease at the bottom of his irritability, we are more than doubtful. We do not think the ill-temper and excitability caused by disease should be accepted as excuses for wrong-doing, or for that recklessness which leads a man to give way to his passion regardless of consequences. If the irascibility of epilepsy were to be regarded as a plea of excuse, we see no reason why the irascibility which is often caused by gout, or that peevishness characteristic of one stage and form of phthisis, and that which accompanies certain of the physiological processes and changes in life, should not also be so regarded. Science knows nothing of sentiment; and we cannot consent to strain points for the sake of what is called humanity. There is, doubtless, great need that the law should be amended in regard to the definition and determination of legal insanity; but we are of opinion that it is also desirable that an attempt should be made to arrive at a better and clearer understanding among ourselves on this subject. Too much is left to individual judgment in the matter, and individual judgment is always likely to be influenced by feeling. Again, medical men range themselves on either side of a suit or cause in which "insanity" is alleged and denied, as lawyers range themselves, but the lawyers at the bar are confronted by lawyers on the bench, who can check the ardour of professional partisanship. It is not so with the profession to which we belong. Unfortunately, there are no medical authorities in high places to whom justice can appeal for an impartial summing up of medical evidence or the just estimate of medical opinions. Medical men as experts cannot be regarded as witnesses to facts. So long as the law persists in so regarding them, there must needs be confusion and uncertainty. It is never a fact of which a legal tribunal can take cognisance—that any accused person is or is not insane. The sanity or insanity of any individual must always be a matter of opinion, and the evidence given by a medical man is an expression of that opinion. The best lawyer in the country is only an amateur, *qua* lawyer, when he attempts to pronounce judgment on the value of a medical opinion. He cannot possibly know anything about it. If he attempts to value the opinion before him he must either do so on the ground of the qualifications or the repute of the medical witness, or he must go outside the opinion given in evidence, and, forming an independent opinion of his own—necessarily a lay opinion—accept that which most closely coincides with the view he has formed. We are simply stating facts. We repeat that the sanity or insanity of no person can be a *fact*; it is a condition, not a quality, and therefore a matter of opinion, and all medical evidence is an expression of opinion. This being so, it is manifestly of the highest moment to determine among ourselves on what grounds and in what way our opinions are to be formed. Let us not wait for the reform of the laws which all desire, but simply settle this preliminary matter and make known the decision at which we have arrived. Such a procedure will not simply help the cause of justice, but tend to place our profession in the position it ought, sometimes at least, to occupy—namely, that of leading instead of following, as is too much our fashion, albeit we are not content.

A MELANCHOLY case of death from the drinking of carbolic acid, in mistake for beer, by a workman engaged in repairing drains at Forest-hill, indicates very strongly the need for greater precautions being taken by the local authorities in their method of supplying powerful disinfectants. The element of danger attending the supply of such agents with a free hand should be practically recognised by those charged with the important duty of distributing them.

AT the conference convened by the Medical Society and the National Health Society, the subject for discussion on the 1st inst. was Recreations and Gymnastics. After the reading of several papers, Sir James Paget maintained that the English system of gymnastics—namely, out-door games—was far superior to the German, Swedish, or any other system.

Annotations.

"Ne quid nimis."

THE COLLEGE OF PHYSICIANS AND CHOLERA.

THE College of Physicians, thinking that the public in England may fairly look to them for advice and guidance, have issued instructions. They, above all things, recommend sanitary measures, pure water, free ventilation, avoidance of overcrowding, great cleanliness, and thorough drainage. They point out the danger of excess in eating and drinking. Milk and also drinking water should be boiled; vessels used for food should be cleansed with boiling water. Persons engaged about cholera patients are not, *with proper precautions*, more liable to the disease. Of these precautions extreme cleanliness and the use of disinfectants, such as carbolic acid, are the principal. House-to-house visitation should be organised and temporary hospitals established. These hospitals should be numerous rather than large. Any unusual looseness of the bowels ought to be promptly attended to. Medical advice should be sought, and meanwhile ordinary medicines, such as chalk mixture and cinnamon powder, may be taken. These instructions are perhaps mild and trite, but they are sensible; and, as the most of them apply to other diseases as well as cholera, they cannot be accepted too gratefully by the public.

SANITARY CONDITION OF CALCUTTA.

THE sanitary condition of Calcutta continues in a very unsatisfactory state. Cholera and small-pox are spreading, and in April the death-rate of the city had risen to 50·3 per 1000 of the population. The municipal commissioners have declined to accept the offer, made to them by the Lieutenant-Governor, of a reduction of about one and a quarter lacs of rupees in the police tax on condition that the municipality should expend annually a lac on sanitary works and improvements in addition to the sum already devoted to that purpose. This decision has roused the European residents to action, and a memorial is to be presented to the Lieutenant-Governor, urging him to appoint a special "commission, under Section 28 of the Municipal Act, with the object of furnishing the Government with a substantial report on the broad question of sanitary and structural reform in the city." It appears to us to be imperative on the Government to take some prompt and efficient measures to overcome the apathy and selfish delay of the commissioners. When the lives of so many are endangered by the disgraceful state of the "bustees," it is clearly impossible to allow the interests of house-owners to interfere with measures of public sanitation. Mr. Justice Cunningham, in a letter published in the *Englishman*, says: "The ravages of disease and death in the miserable localities are chronic, constant, and enormous, and the needless misery and loss of life thus wantonly and persistently inflicted on the poor and unprotected portion of the inhabitants is a crime of which we ought to purge our consciences without delay." Surgeon-General Payne, in a letter to Mr. Cunningham, points out, in our opinion correctly, as one of the chief causes of this unsatisfactory state of things, "that there is no sanitary administration in Calcutta, where there is a large administrative body whose most important duty is the protection of the public health, and all sorts of municipal committees. Where there are numbers there can be no sense of responsibility, which alone is fatal to administration." Dr. Payne suggests that an independent committee should be appointed to study the wants of Calcutta, and steps taken to secure that their plans be carried out. "No good can come of general admonitions, or of lecturing seventy-two men on responsibility which human nature does not permit any individual among them to feel; or of accepting budget allotments as a guarantee for good work, with no critic to tell us whether the money is devoted to the work of the greatest urgency." He at the same time points out how much may be done, and ought to be done, in the way of self-help, especially in enforcing vaccination and revaccination among servants and *employés* in large establishments. "If every head of a house, or an office, or a firm in Calcutta were to declare that after a given day no person should enter his premises who had not been vaccinated within a certain period, there would be better protection in a month than any number of memorials can confer, and the Corporation would derive more help in their work than any order or sanction of Government can give them." We trust that the Lieutenant-Governor may see his way to adopt such measures as shall prove adequate to enforce the prompt action requisite in the interests of the public, and to entrust the charge of the sanitary arrangements of Calcutta to a small but efficient body of experts, armed with powers to carry out such improvements as they may deem necessary to ensure the health of the general population.

THE ADDRESS IN THE OPHTHALMOLOGICAL SECTION AT BELFAST.

DR. MCKEOWN occupied the greater part of his address to the ophthalmologists who have congregated at Belfast with an account of his method of treating and operating on cataracts. This method consists in the injection of water into the capsule of the lens at a temperature at or about that of the body. He justly remarks that in any new operative procedure the most minute particulars are of consequence—and in the present case these details are wanting,—but so far as we are able to judge from the account of his address, he appears to recommend the extraction of the lens in all cases of cataract, whether mature or immature, and that he trusts to the removal of the cortical substance, which is so often a cause of secondary cataract, by means of the intra-capsular injection of water. The plan is feasible enough, but we would suggest the employment of what is termed by the histologists normal solution—i.e., a 0·75 per cent. solution of common salt—rather than pure water. He thinks that by this means all cortical substances may, with care, be washed away; but in the report of his speech some remarks are made which are at present difficult to understand, and require elucidation. Thus he speaks of the introduction within the capsule of a needle attached to an ordinary hypodermic syringe, and remarks that "if there be any part of the lens substance easily disturbed, the injection usually ruptures the capsule a little at the point of puncture, and washes out a good deal of cortex." Is Dr. McKeown speaking of an ordinary extraction? If so, we should think the lens substance was considerably disturbed. If not, does Dr. McKeown inject water into the globe without any escape being possible for the excess, and under these circumstances, how much can he inject? Is not this a dangerous proceeding?

INTESTINAL SEPTICÆMIA.

THE possibility of septicæmia occurring as the result of absorption of putrid material developed in the intestine has been the subject of inquiry by Gaspard, Stich, Piorry, and others. A case of some interest has been narrated in detail by MM. Lépine and Mollière in No. 29 of the *Lyon Médical*. The patient, a man aged forty-four, was first under the care of the latter gentleman for a strangulated gangrenous hernia of the right inguinal region. It was deemed advisable to make an artificial anus, and it turned out that this unnatural opening led into the ascending colon, and not into the small intestine. All was going on well for

months, when one day, without any obvious cause, the patient became delirious, a scarlatiniform rash appeared on the whole surface of the body, the pulse increased in frequency, the pupils became greatly dilated, but there was no pyrexia. On account of the appearance of these symptoms the patient was transferred to the medical care of M. Lépine. The fauces were not inflamed, though the throat was said by the patient to be dry, but no lymphatic enlargement could be detected. The rash did not disappear. The symptoms could not be laid to the charge of belladonna or any other medicament, for the patient had not taken any drug whatever. Zuelzer and Sonnenschein have extracted from putrid liquids a ptomaine giving rise to all the toxic properties of atropine; and M. Lépine, bearing this and the condition of the intestine in mind, diagnosed "auto-intoxication par une ptomaine atropique." This hypothesis fully explained the strongly dilated pupils and scarlatiniform rash and other symptoms, as well as an intense conjunctivitis which appeared later on, as did also an irregular pyrexia. The man died of asthenia. The necropsy revealed a horrible state of the large intestine beyond the artificial anus. The colon contained a putty-like mass, extremely fetid, and it is said of an odour *sui generis*. It seemed that the washings of the bowels, which had repeatedly been made, were totally inefficacious.

CHOLERA AND CREMATION.

AMONG the objections to cremation the risk of practising it on bodies not really but apparently dead has often been urged, particularly in Southern Europe, where, except in special cases, burial follows so rapidly on the certified cessation of life. This objection has just been revived with some force, coincidently with the recall of public attention to Pacini's remarkable paper on "Morte apparente, l'ultimo Stadio del Colera Asiatico" (apparent death, the last stage of Asiatic cholera). There are, according to the Tuscan pathologist, four stages in the course of this malady:—1. The premonitory stage, in which the intestinal transudation produces diarrhœa or, instead, gives rise to intestinal borborygmi from the reabsorption of the liquid transuded. 2. The hydrorrhagic stage, in which the intestinal transudation, becoming excessive, begins to cause diminution of the aqueous part of the blood and of the tissues, producing, when this is not retained in the intestine, the dejections properly so called. 3. The algid or asphyxial stage, in which, the aqueous part of the blood diminishing more and more, followed by diminution of the circulatory movement and all the other functions depending on it, the intestinal transudation also diminishes and the dejections cease. 4. Stage of apparent death, in which the intestinal transudation is on the point of ceasing, with the circulation of the blood and with life. In this last stage the circulation has not really ceased, as it usually does in ordinary cases of syncope and asphyxia, but is only reduced to extreme slowness; as a proof of which may be cited the fact that in cholera patients assumed to be dead ("nei pretesi cadaveri dei colerosi"), very often not only the temperature rises, but even the cyanosis disappears on the sanguineous stasis of the cutaneous capillaries resolving itself. The pathological induction by which Pacini arrives at his thesis, and the therapeutic doctrine he bases on it, would be more in place in another annotation; at present it will suffice to indicate the cases of apparent death he adduces, and the admonition it conveys to the advocates of immediate burial or immediate cremation. Prof. Betti, in the cholera epidemic which ravaged Florence in 1854, recorded several cases of marked rise of temperature, disappearance of cyanosis, and muscular movements of the upper, and especially the lower, extremities in bodies certified as dead. One of these, three-quarters of an hour after death, flexed and extended the forearms, clutched in his hand the bulb of the thermometer, and carried the arms from the side of the trunk on to the thorax. More remarkable movements of the muscles were observed in a woman just announced as dead of cholera on whom the Cæsarean operation was performed, the diaphragm being seen to ascend and descend. Puccinotti (the author of the classic "History of Medicine"), contemporarily with Betti, records similar phenomena in the same epidemic; while at Naples in the same year cases certified as dead and given over to the undertaker were rescued within a few minutes of interment. The narrow escape of one such case in the last cholera epidemic at Naples is recorded in the *Gazzetta d'Italia* of September 28th, 1873, the fortunate patient's name being Alfonso Lascala. "On a prouvé," writes Dr. le Bon ("De la Mort Apparente," Paris, 1866), "qu'on enterrait beaucoup de cholériques susceptibles d'être rendus à la vie."

SARCOMA OF THE OVARY AND OMENTUM SUCCESSFULLY REMOVED.

Il Morgagni, for June last, published a report by Dr. Cosmo Spadaro, of a successful operation performed by Professor A. d'Antona for sarcoma of the right ovary and of the omentum. The patient, A. S——, aged fifteen, from Salerno, was admitted into Professor Cantani's clinique last February. She first menstruated the previous July, and again in August, but not since. In September (five months before admission) she noticed in the right iliac fossa a tumour as large as a hen's egg. It grew rapidly, but only gave trouble by its weight. The tumour, largely lobulated and solid, filled the right iliac fossa, and extended up into the corresponding hypochondrium, the ascending colon being scarcely perceptible on percussion. The operation was performed on April 3rd. The omentum was extensively adherent, and its vessels were much enlarged. The pedicle, which was a long one, was tied, and dropped into the pelvis. Another tumour, as large as an orange, was then noticed between the folds of the omentum, and adhering to the great curvature of the stomach. That tumour having also been removed, and some vessels which fed it tied, the abdominal cavity was closed with ten sutures. Some febrile symptoms supervened, but abated in the course of thirty-six hours. Half the sutures were removed on the fourth day, and the remainder on the eighth. The patient was fully convalescent, and sat up in bed, on the tenth day. The tumour weighed sixteen pounds, and on section proved characteristically sarcomatous, and in one part encephaloid.

A CHAPTER OF ACCIDENTS.

THE case of which the following account is a brief description presents many points of interest, not only from a pathological, but also from a clinical and practical, point of view. The patient was a man aged twenty, who had a large tumour of the face, supposed to have been due to the extension of a malignant naso-pharyngeal polypus. An operation had already been performed, and the superior maxillary bone removed. When first seen by M. Verneuil the new growth was excessively vascular, and a distinct bruit was to be heard like that found in cases of arterio-venous aneurysm. As the tumour appeared to consist largely of erectile tissue, many surgeons who saw the case with M. Verneuil advised the employment of irritant injections with a view to setting up inflammation, and, it was hoped, subsequent atrophy. The result of the injections was not a happy one; much inflammation ensued, and frequent bleeding took place, the tumour increased in size and the patient's health obviously declined. Whilst matters were at this pass M. Verneuil resolved to ligature the common carotid on the same side of the neck as the tumour, with the object of controlling the hæmorrhage and relieving the inflammation.

For a brief period these objects were attained, but a large abscess formed in the tissues of the tumour, and finally burst outwards through the skin. Again, there was an interval of comparative comfort for the patient. At the end of this, however, an attack of erysipelas set in. The ligature came away on the fourteenth day, but the wound did not completely heal. Notwithstanding much local treatment, many sloughs and a piece of the carotid artery twelve millimetres long came away from the wound, and frequent hæmorrhage from this site ended in the death of sufferer. At the autopsy the sphenoid fossa was found to have been penetrated by the tumour, so that a projection the size of a nut was seen in the cranial cavity. The distal end of the carotid artery was perfectly obliterated; but a long search was needed before the remains of the cardiac end could be found in the putrid tissues of the wound. There was a recent thrombosis of the internal jugular vein; the vagus nerve is said to have been intact. All the viscera were healthy, if exception be made of a fatty liver. There were no metastatic abscesses. The brain was slightly inflamed at that part which was in contact with the tumour.

THE BIRMINGHAM MEDICAL BENEVOLENT SOCIETY.

THE annual report issued by Dr. Thomas Savage, who has just entered into office as honorary secretary of this Society, is a highly satisfactory document. The members are 280, with a capital of £10,130. The annual average for the last five years shows grants, £390; income from investments, £370; total income, £679; total expenditure, £431; excess of total income over grants, £289; excess of total income over total expenditure, £248. In this prosperous institution the court of directors are able to answer promptly and with judicious liberality all deserving claims under their rules, and at the same time to add to their investments with a safe margin for eventualities. The subscriptions of a member close on reaching a total of £22 1s.; and for this comparative trifle two annuitants, widows of members, have received respectively the handsome totals of £1125 and £1247 10s. With such substantial advantages, it is not a little remarkable that the roll does not exceed 280, when the wide area from which members are eligible is taken into account. The Society's second rule provides that "any registered medical practitioner, regularly practising his profession within fifty miles of Birmingham, or within the distance of ten miles of the residence of any corresponding member, shall be eligible as a member of this Society."

TYPHOID FEVER AND PERFORATION OF THE GALL-BLADDER.

IN medical diagnosis we frequently have to deal with a question of probabilities. There can be no doubt, however, that a little more logic and less hazard are needed in dealing with clinical problems. M. Barbe has recently recorded the case of a man, aged twenty-six, who, whilst suffering from an attack of chronic jaundice, certainly due to obstruction of the bile-duct from a stone, appears to have been unfortunate enough to develop the signs and symptoms of typhoid fever. From the report given we gather that the fever, the nature of which cannot be called in question, was at about the eighth day of its course when the symptoms of peritonitis set in and the patient succumbed. At the necropsy the lymphatic structures of the small intestine, cæcum, ascending colon, and *stomach* were greatly swollen and even already partially ulcerated. It may be mentioned that the patient vomited black matter, and it would appear that this was altered blood derived from the ulceration of the lymphatic follicles in the stomach. The spleen was enlarged and diffluent. The liver was large, yet little stained with bile, notwithstanding the obstruction of the bile-duct, yellowish in places, tough, and resistant to the knife. The gall-bladder was found to be shrunken and empty of bile, but adherent to the transverse colon, and contained a large calculus. After laying it open an ulceration of greyish-black colour was seen at the base of the viscus; in two places the ulceration had gone on to perforation. M. Barbe discusses the relationship of the ulceration of the gall-bladder to the calculus and typhoid fever. Seeing that there was such a general affection of the lymphatic structures of the gastro-intestinal mucous membrane, and seeing that this affection had gone on to ulceration not only in the intestines, but also in the stomach, we think there exists considerable probability that the disease of the gall-bladder was largely due to the poison of typhoid fever. That the ulceration in the gall-bladder should have been deeper than elsewhere, and so attended with more serious consequences, is, perhaps, only to be expected from the presumably greater irritation resulting from the presence of a calculus as compared with whatever food might have been ingested and brought into contact with the tissues of the stomach and intestine.

SMALL-POX IN THE DIAMOND FIELDS.

THE pestilence still rages with undiminished virulence. White men and natives alike are falling victims to it. The area of distribution is unfortunately a very wide one, and for this reason the resources of the authorities are taxed to the utmost. From the local press we gather that Drs. Jameson and Wolff still maintain that the disease is not small-pox, and decline to admit that it is generally infectious and contagious. We sincerely trust the report does not correctly give the position of Drs. Jameson and Wolff with regard to an epidemic which has almost universally been declared to be small-pox. It matters but little now whether they consider it as such or as varicella. The wind has been sown and now the whirlwind is being reaped. It is to be hoped that the wreckage will be less than we fear is probable. The Cape Government has stated in Parliament that the only powers it possesses are, first, that of granting permission to the local authorities to raise means wherewith to arrest and stamp out the plague, and secondly, that of proceeding against those who on affidavit can be shown through wilful or culpable negligence to have been the cause of injury to the community. It is a sorry state of affairs that the Central Executive finds itself in, if its action is thus limited by the statute law. Cannot a short measure be passed giving greater control to the Sanitary Board? Clearly something is needed, if success is to be deserved, much less demanded.

CAPITAL PUNISHMENT IN FRANCE.

AT length it is beginning to be recognised in France that the brain of a decapitated criminal lives, and consciousness is maintained, for an appreciable time, which to the victim may seem an age, after death—an opinion we strongly expressed many years ago. This ghastly *fact*—as we have no doubt it is—being perceived, it is beginning to be felt that executions cannot any longer be carried out by the guillotine. Prussic acid is now proposed. If instantaneous death be desired, this is clearly inadmissible. The period taken to terminate life by poison of any kind must needs vary greatly with the individual. In not a small proportion of instances we fancy death by prussic acid would be considerably protracted, and although long dying is not so horrible as living after death—so to say—yet it is strongly opposed to the interests of humanity to protract the agony of a fellow-creature dying by the hand of justice. Electricity is another agent suggested. We doubt the pos-

sibility of applying this agent so as to destroy life instantly. We confess that, looking at the matter all round, we incline to think that hanging, when properly performed, destroys consciousness more rapidly and prevents its return more effectually than any other mode of death which justice can employ. It is against the bungling way of hanging we protest, not against the method of executing itself. That is, on the whole, the best, we are convinced.

THE ACCIDENT TO LADY SHUCKBURGH.

OUR readers will have seen in the daily papers accounts of a serious accident by which the life of Lady Shuckburgh has been placed in some danger from the bite of a mad dog. The wound, no doubt, has received prompt and careful attention, and we sincerely hope that evil consequences may be averted. It is, moreover, consoling for all in similar circumstances to know that bites of rabid dogs, even if not treated, do not invariably cause hydrophobia. The case before us, with the bite still recent, is one of those in which Professor Pasteur, in his recent communication on rabies before the Paris Academy of Sciences, held out a guarded hope of immunity by early inoculation with a modified virus. His words are worth quoting. After describing his researches, he says: "On this point [the suppression of hydrophobia by inoculation after a rabid bite] the first experiments which I have conducted give the greatest hopes of success. Thanks to the duration of incubation of rabies resulting from a bite, I have every reason to believe that one can surely bring about a protected state in the person bitten before the disease has had time to develop itself. While these first experiments give much colour to this view, it is necessary to multiply indefinitely such tests in the lower animals before therapeutic science will be hardy enough to extend their action to the human subject." It may be added that since these words were spoken M. Pasteur has shown, by an extended and apparently conclusive experiment, that his method of inoculation is protective in the case of dogs against the bites of rabid members of their own species.

THE GASTRIC SECRETION OF THE FŒTUS.

IT has been shown that if sulphindigotate of soda or iodide of potassium be given to a rabbit towards the end of pregnancy, these chemicals are always present in the liquor amnii, and have been occasionally discovered in the stomachs of the embryos. This latter fact has hitherto been explained as being the result of swallowing liquor amnii by the fœtus, and indeed has been cited as a proof that the fœtus does swallow liquor amnii under normal conditions. The absence of these salts from the rest of the body of the fœtus, or their extremely minute proportions if present, seemed to negative the idea of their secretion into the stomach from the fœtal blood. This subject has lately engaged the attention of Dr. Krukenberg, of Bonn, who proved first that iodide of potassium was as constantly found in the stomach as in the liquor amnii after subcutaneous injection in guinea-pigs and rabbits towards the end of pregnancy. He afterwards found that in guinea-pigs less advanced in pregnancy, the chorionic fluid (between chorion and amnion) contained the salt, and not the liquor amnii, while in this case also the stomach contained the iodide. This negatived the idea of fœtal deglutition and confirmed that of gastric secretion from the fœtal blood. The same results followed in rabbits before the final third of pregnancy, and in a cat and a bitch at the end of pregnancy the iodide was found to be present in the stomach but absent from the allantoic and amniotic fluid, and entirely or almost entirely absent from the fœtal tissues. He therefore concludes that the presence of the salt in the stomachs of immature fœtuses of rabbits and guinea-pigs (in which the liquor amnii does contain it) is explained by the cases of mature embryos of those animals, in which the liquor amnii does not contain it while the stomach does, and that in all cases it is essentially secreted from the fœtal blood. It seems probable that easily diffusible substances pass into the fœtus and are excreted from its stomach far more copiously than has been imagined. The great difference of excretion of the salt into the chorionic or amniotic fluid in different animals, or even in the same animal at different stages of pregnancy, is remarkable, and furnishes an additional proof of the danger of arguments from analogy.

THE RECENT CASE OF CHOLERA AT ALEXANDRIA.

A CORRESPONDENT at Cairo writes: The facts relative to the recent case of cholera are very simple, and were certainly not enough to cause a scare in Alexandria. It appears that an Austrian woman cook, aged forty, living in an Italian restaurant, had suffered from diarrhœa for a few weeks before July 13th, for which she had been treated by a medical man, and which did not prevent her from working as usual. On the night of the 13th she is stated to have had forty rice-water motions, accompanied twice by vomiting. She was taken to the European hospital early on the morning of the 14th, and had neither vomiting nor diarrhœa for several hours. Her condition on this morning was described by all the doctors who saw her as follows: facies choleraica, loss of voice, fall of temperature, foul tongue, intense thirst, severe cramp in calves and thighs, complete suppression of urine, collapsed pulse, and great mental anxiety. These symptoms abated slightly towards evening, when there was one liquid motion, followed for a time by very severe cramp in the thighs. On the 15th there was no more vomiting, the diarrhœa was insignificant, the voice had partly recovered its strength, and the cramps and suppression of urine had disappeared. Thereupon four doctors signed a bulletin to the effect that the case was one of "cholera nostras," and a fifth doctor stated that he would wait until the complete cure of the patient before affixing his name to the diagnosis. The patient is now convalescent, and there has been no suspicion of a second case. A case of cholera occurred, however, on board a French steamer in quarantine at Alexandria. The sick man and all the passengers were sent to the lazaretto, and the quarantine term was raised from seven days to ten. The whole official world of Egypt flocks to Alexandria this week to pay its respects to the Khedive, and to enjoy all forms of Bairam feasting. Fortunately for the general health, those who are most likely to give way to immoderate excess are not those who are now strictly observing the thirty days' fast. The health of the English army continues remarkably good; there being about 8 per cent. of sickness, of which 3 per cent. are due to venereal disease.

CRIMINAL ABORTION.

AN adjourned inquiry was held at University College Hospital, on July 31st, touching the death of Mary Trumble, aged thirty-two. The deceased was a single woman. Some nine years previous to her death she gave birth to a child still living. Her late illness commenced on or about July 10th, when she complained of diarrhœa and a bilious attack. On the 14th a medical man was called in, and he attended the deceased until her admission into hospital on the 20th. Up to that time it was supposed she was suffering from typhoid fever, and neither the doctor nor nurse suspected the actual state of affairs. Mr. Woolbert, the house-physician at University College Hospital, finding the woman in a moribund condition, was unable to make a definite diagnosis, but expressed his opinion that abortion might have taken place, and, acting upon that opinion, refused to give a death certificate

without having first made a post-mortem examination. The coroner, Dr. Danford Thomas, on the facts being laid before him, ordered an inquest to be held. On the first day of the hearing Mr. Woolbert detailed the nature of a number of wounds he discovered, and also other evidence which in his judgment conclusively proved that an abortion had been obtained by forcible means. There were two punctured wounds external to the vulva, such as might have been made with a knitting-needle or some such instrument. The vagina was extensively lacerated and bruised. The uterus together with the ovaries weighed thirteen ounces. On examining the interior a flocculent appearance was observed at the posterior part, clearly pointing to a placental attachment. Opposite this, and quite unconnected with it, was a rugged, broken surface of smaller dimensions. There were no anatomical signs of typhoid fever. As some little doubt was cast upon Mr. Woolbert's conclusions, the coroner ordered Mr. Pepper to investigate the case, and report the result at the adjourned inquest. This gentleman deposed that he entirely agreed with Mr. Woolbert that an instrumental abortion had been procured. He had ascertained that the wounds above described had been inflicted some days prior to death; he further found a small lacerated wound in the uterus, three-quarters of an inch from the external os, and in a direct line with the larger one on the anterior surface. In one ovary was a corpus luteum, measuring half by a quarter of an inch. Mr. Pepper stated he was quite certain that an abortion had been induced by violence, and that the injuries had been done by some one other than deceased. He was further of opinion that the instrument had been used by a person having some anatomical knowledge of the parts, as it had been steered directly through the os into the uterine cavity. He attributed the wound and bruises about the vagina and vulva to the clumsiness or nervousness of the operator. The cause of death was metro-peritonitis and septicæmia. It is matter of regret that the real condition of the deceased was not discovered during her lifetime, as then measures might have been taken with a view to combat the dangers which threatened and afterwards destroyed her life. Moreover, the means of bringing the perpetrator of the crime to justice were then ready to hand; now, with the death of the victim, the only reasonable expectation of doing so has vanished.

EASY LIQUEFACTION OF OXYGEN.

IT will be remembered that Messrs. Wroblewski and Olszewski some time ago succeeded in liquefying oxygen by the use of ethylene. M. Cailletet has searched for and found a body having a still lower boiling point than ethylene, and by means of which oxygen can be very readily liquefied. This substance is simply formene or marsh gas, which under slight pressure and cooled in ethylene, boiling under the ordinary atmospheric pressure, is resolved into an extremely mobile, colourless liquid, which in passing again into a gaseous state causes such a lowering of temperature that oxygen in its neighbourhood is immediately liquefied.

THE REPEAL OF THE PATENT MEDICINES STAMP ACT.

AT the recent meeting of the British Medical Association the following resolution, proposed by Professor Matthew Hay and seconded by Dr. Leech of Manchester, was adopted:—"That in the opinion of the section of Pharmacology and Therapeutics of the British Medical Association it is highly desirable that the Patent Medicines Stamp Act should be repealed, for the following reasons: (1) It is unjust to impose a tax on medicines; (2) the Act as recently interpreted promises greatly to impede the importation and use, especially in hospital practice, of medicines of foreign origin; (3) the Government label issued under the Stamp Act is taken advantage of by patent medicine manufacturers to give the appearance of Government endorsement to their productions, and lead the public to suppose that the properties of the medicines are sanctioned by authority." This resolution was brought before the final general meeting, and was referred to the Council to consider what action should be taken in the matter.

HOSPITAL SUNDAY FUND, 1884.

IT is gratifying to have to report that a sum in excess, by £100 or £200, of that of any previous year has been raised by the religious community of the metropolis in aid of the great cause of hospitals. Over £31,000 has to be distributed—viz., £29,026 to hospitals and £2257 to dispensaries. The generally satisfactory state of the institutions may be gathered from the fact that in only one instance was it necessary for the Committee of Distribution to press for the attendance of a deputation. The growing need for the fund and for its development is shown in the fact that forty-three more institutions than were assisted at the commencement of the fund will receive an award from the collection of this year. In conformity with Law XII., 4 per cent. of the total amount of collections—viz., £1400—is ordered to be set aside for the purchase of surgical appliances.

THE metropolitan police courts are, it is satisfactory to note, affording evidence of some degree of activity on the part of the vestries in respect of insanitary dwellings. During the last few days, magistrates' orders have been obtained for the abatement of nuisances and for the supply of arrangements and conditions essential to the health of the inhabitants of dilapidated houses.

WE are asked to state that the mural tablet to be erected in the Royal Victoria Hospital, Netley, in memory of the officers of the Army Medical Department who lost their lives in the Afghan and Zulu wars, has been designed and sculptured by Count Gleichen, and can be viewed between the hours of 11 and 6 at Count Gleichen's studio, St. James's Palace.

A CORRESPONDENT to the *Dumfries and Galloway Standard*, using the *nom de plume* "Sanitas," calls attention to the fact that the Crichton Institute and Southern Counties Asylum draw their water supplies from a well which has for its chief feeding-ground rocks over which the whole sewage of the town is supposed to pass.

A LUNACY COMMISSION consisting of eight members has been appointed by the Government of Victoria to inquire into and report upon the state and condition of asylums for the insane and inebriate, both public and private, in the colony. The first public meeting of the Commission was held on June 3rd.

THE Dewsbury guardians have withdrawn from their untenable position. At a meeting of the board on the 1st inst. they appointed public vaccinators for Mirfield and Thornhill. This submission on their part puts an end to the legal proceedings instituted against them by the Local Government Board.

WE learn that Drs. Klein and Heneage Gibbes sailed for India on Wednesday last in the Peninsular and Oriental steamship *Ancona*.

THE death is announced of Dr. Moreau, the distinguished alienist, and the pupil of Esquirol, in his eighty-first year.

THE Queen, with her characteristic grace and kindness, along with the Princess Beatrice, paid a visit to Dr. and Mrs. Royle at their villa during Her Majesty's stay at Claremont. This was the only house in the neighbourhood thus honoured by the Royal presence.

THE Queen has been pleased to appoint Sir Prescott Gardiner Hewett, Bart., F.R.S., to be one of Her Majesty's Serjeant-Surgeons in Ordinary, in the room of Mr. Cæsar H. Hawkins, F.R.S., deceased.

DR. THOMAS COLLINS has been re-elected representative on the Medical Council for the Apothecaries' Hall of Ireland for the ensuing year.

MR. CORLEY has been elected a Member of Council of the Royal College of Surgeons in Ireland. He was unopposed.

DR. KOCH ON THE CHOLERA.

AN important and influential conference[1] upon cholera was opened in Berlin at the Imperial Board of Health on the evening of July 26th. There were present Drs. v. Bergmann, Coler, Eulenberg, B. Fränkel, Gaffky, Hirsch, Koch, Leyden, S. Neumann, Pistor, Schubert, Skreczka, Struck, Virchow, and Wolffhügel. The conference had been called at the instance of the Berlin Medical Society, whose President, Prof. Virchow, explained that it was thought advisable Dr. Koch should in the first instance give a demonstration of his work before a smaller body than the whole Society, so that the proceedings might be fully reported in the medical press. He mentioned that Herr Director Lucanus and President Sydow had expressed their regret at being unable to be present, as well as many others, including Drs. von Lauer, von Frerichs, Mehlhausen, and Kersandt. Before the meeting Dr. Koch exhibited microscopical specimens and drawings of the cholera bacillus, and demonstrated the method of its preparation and cultivation. The preparations included specimens of choleraic dejections dried on covering glasses, stained with fuchsin or methyl-blue, and examined with oil immersion, one-twelfth, and Abbe's condenser; also sections of intestine preserved in absolute alcohol, and stained with methyl-blue. There were also cultures in gelatin, &c.

Dr. KOCH commenced by remarking that what was required for the prevention of cholera was a scientific basis. Many and diverse views as to its mode of diffusion and infection prevailed, but they furnished no safe ground for prophylaxis. On the one hand, it was held that cholera is a specific disease originating in India; on the other, that it may arise spontaneously in any country and own no specific cause. One view regards the infection to be conveyed only by the patient and his surroundings; the other that it is spread by merchandise, by healthy individuals, and by atmospheric currents. There is a like discrepancy in the views on the possibility of its diffusion by drinking water, on the influence of conditions of soil, on the question whether the dejecta contain the poison or not, and on the duration of the incubation period. No progress was possible in combating the disease until these root-questions of the etiology of cholera are decided. Hitherto the advances in knowledge upon the etiology of other infective diseases have done little towards the etiology of cholera. These advances have been made within the last ten years, during which time no opportunity—at least not in Europe—has occurred to pursue researches; and in India, where there is abundant material for such research, no one has undertaken the task. The opportunity given by the outbreak of cholera in Egypt last year to study the disease before it reached European soil was taken advantage of by various Governments, who sent expeditions for the purpose. He had the honour to take part in one of these, and in accepting it he well knew the difficulties of the task before him, for hardly anything was known about the cholera poison, or where it should be sought; whether it was to be found only in the intestinal canal, or in the blood, or elsewhere. Nor was it known whether it was of bacterial nature, or fungoid, or an animal parasite—e.g., an amœba. But other difficulties appeared in an unexpected direction. From the accounts given in text-books he had imagined that the cholera intestine would show very slight changes, and would be filled with a clear "rice-water" fluid. He had not fully recollected the conditions met with in post-mortem examinations he had formerly made, and was therefore at first surprised to meet with quite a different state of things. For he soon found that in a large majority of cases remarkably severe lesions were present in the intestines. In other cases the changes were slighter, and eventually he met with some which to a certain extent corresponded with the type described in text-books. But it was some time, and after many inspections, before he was enabled to correctly interpret the varied changes met with. In spite of a most careful examination of all other organs and of the blood, nothing was found to establish the presence of an infective material, and attention was finally concentrated on the intestinal conditions. There were cases in which the lower segment of the small intestine, most marked immediately above the ileo-cæcal valve, extending thence upwards, was of a dark-reddish-brown colour, the mucous membrane being covered with superficial hæmorrhages. In many cases the mucous membrane appeared to be superficially necrosed, and covered with diphtheritic patches. The intestinal contents in such cases were not colourless, but consisted of a sanguinolent, ichorous, putrid fluid. Other cases showed a gradual transition to a less marked change. The redness was less intense, and was in patches, whilst in others the injection was limited to the margins of the follicular and Peyerian glands, giving an appearance which is quite peculiar to cholera. In comparatively few cases were the changes so slight as to consist in a somewhat swollen and opaque condition of the superficial layers of the mucous membrane, with delicate rosy-red injection, and some prominence of the solitary follicles and Peyer's patches. In such cases the intestinal contents were colourless, but resembling meal-soup rather than rice-water. In only a solitary instance were the contents watery and mucoid. Microscopical examination of the intestine and its contents revealed, especially in the cases where the margins of Peyer's patches were reddened, a considerable invasion of bacteria, occurring partly within the tubular glands, partly between the epithelium and basement membrane, and in some parts deeper still. Then he found cases in which, besides bacteria of one definite and constant form, there were others also accumulated within and around the tubular glands, of various size, some short and thick, others very fine; and he soon concluded that he had to do here with a primary invasion of pathogenic bacilli, which, as it were, prepared the tissues for the entrance of the non-pathogenic forms; just as he had observed in the necrotic, diphtheritic changes in the intestinal mucosa and in typhoid ulcers. Passing to speak of the microscopical characters of the contents of the bowel, Dr. Koch said that owing to the sanguinolent and putrescent character of these in the cases first examined, no conclusion was arrived at for some time. Thus he found multitudes of bacteria of various kinds, rendering it impossible to distinguish any special forms; and it was not until he had examined two acute and uncomplicated cases, before hæmorrhage had occurred, and where the evacuation had not decomposed, that he found more abundantly the kind of organism which had been seen so richly in the intestinal mucosa. He then proceeded to describe the characters of this bacterium. It is smaller than the tubercle bacillus, being only about half or at most two-thirds the size of the latter, but much more plump, thicker, and slightly curved. As a rule, the curve is no more than that of a comma (,) but sometimes it assumes a semicircular shape, and he has seen it forming a double curve like an S; these two variations from the normal being suggestive of the junction of two individual bacilli. In cultures there always appears a remarkably free development of comma shaped bacilli. These bacilli often grow out to form long threads, not in the manner of anthrax

[1] A detailed report is published in the Berliner Klinische Wochenschrift of Aug. 4th.

bacilli, nor with a simple undulating form, but assuming the shape of delicate long spirals, a corkscrew shape, reminding one very forcibly of the spirochæte of relapsing fever. Indeed, it would be difficult to distinguish the two if placed side by side. On account of this developmental change, he doubted if the cholera organism should be ranked with bacilli; it is rather a transitional form between the bacillus and the spirillum. Possibly it is a true spirillum, portions of which appear in the comma shape, much as in other spirilla—e.g., spirilla undula, which do not always form complete spirals, but consist only of more or less curved rods. The comma bacilli thrive well in meat infusion, growing in it with great rapidity. By examining microscopically a drop of this broth culture the bacilli are seen in active movement, swarming at the margins of the drop, interspersed with the spiral threads, which are also apparently mobile. They grow also in other fluids—e.g., very abundantly in milk, without coagulating it or changing its appearance. Also in blood serum they grow very richly. Another good nutrient medium is gelatine, wherein the comma bacilli form colonies of a perfectly characteristic kind, different from those of any other form of bacteria. The colony when very young appears as a pale and small spot, not completely spherical as other bacterial colonies in gelatine are wont to be, but with a more or less irregular protruding or jagged contour. It also very soon takes on a somewhat granular appearance. As the colony increases the granular character becomes more marked, until it seems to be made up of highly refractile granules, like a mass of particles of glass. In its further growth the gelatine is liquefied in the vicinity of the colony, which at the same time sinks down deeper into the gelatine mass, and makes a small thread-like excavation in the gelatine, in the centre of which the colony appears as a small white point. This, again, is peculiar; it is never seen, at least so marked, with any other bacterium. And a similar appearance is produced when gelatine is inoculated with a pure culture of this bacillus, the gelatine liquefying at the seat of inoculation, and the small colony continually enlarging; but above it there occurs the excavated spot, like a bubble of air floating over the bacillary colony. It gives the impression that the bacillus growth not only liquefies the gelatine, but causes a rapid evaporation of the fluid so formed. Many bacteria also have the power of so liquefying gelatine with which they are inoculated, but never do they produce such an excavation with the bladder-like cavity on the surface. Another peculiarity was the slowness with which the gelatine liquefied, and the narrow limits of this liquefaction in the case of a gelatine disc. Cultures of the comma bacillus were also made in Agar-Agar jelly, which is not liquefied by them. On potato these bacilli grow like those of glanders, forming a greyish-brown layer on the surface. The comma bacilli thrive best at temperatures between 30° and 40° C., but they are not very sensitive to low temperatures, their growth not being prevented until 17° or 16° C. is reached. In this respect they agree with anthrax bacilli. Koch made an experiment to ascertain whether a very low temperature not merely checked development but killed them, and subjected the comma bacilli to a temperature of −10° C. They were then completely frozen, but yet retained vitality, growing in gelatine afterwards. Other experiments, by excluding air from the gelatine cultures, or placing them under an exhausted bell jar or in an atmosphere of carbonic acid, went to prove that they required air and oxygen for their growth; but the deprivation did not kill them, since on removing them from these conditions they again began to grow. The growth of these bacilli is exceptionally rapid, quickly attaining its height, and after a brief stationary period as quickly terminating. The dying bacilli lose their shape, sometimes appearing shrivelled, sometimes swollen, and then staining very slightly or not at all. The special features of their vegetation are best seen when substances which also contain other forms of bacteria are taken—e.g., the intestinal contents or choleraic evacuations mixed with moistened earth or linen and kept damp. The comma bacilli in these conditions multiply with great rapidity so as to far outnumber the other forms of bacteria, which at first might have been in far greater abundance. This state of affairs does not last long; in two or three days the comma bacilli begin to die off, and the other bacteria to multiply. Precisely the same thing takes place in the intestine, where, after the rapid initial vegetation is over, and when exudation of blood occurs into the bowel, the comma bacilli disappear and putrefactive bacteria predominate. Whether the occurrence of putrefaction is inimical to the comma bacilli has not been proved, but from analogy it is very probable. At any rate, it is important to know this for certain, for if it be so then the comma bacilli will not thrive in a cesspit, and then further disinfection would be unnecessary. These bacilli thrive best in fluids containing a certain amount of nutriment. Experiments have not yet shown the limits in this respect, but Koch has found them capable of growing in meat broth diluted ten times. Again, if the nutrient medium become acid in reaction their growth is checked, at least in gelatine and meat infusion; but, singularly enough, they continue to grow on the surface of boiled potato which has become acid, showing that all acids are not equally obnoxious to them. But here, as with other substances which hinder their growth, they do not kill the bacilli. Davaine has shown that iodine is a strong bactericide. He experimented with anthrax bacilli in water to which iodine was added, and the bacilli were destroyed. But practically the organisms have to be dealt with in the alkaline contents of the bowel, or in the blood or fluids of the tissues, where iodine cannot remain in the free state. Koch found that the addition of an aqueous solution of iodine (1 in 4000) to meat infusion, in the proportion of 1 in 10, did not in the least interfere with the growth of the bacilli in that medium. He did not pursue this line of inquiry, seeing that in practice larger quantities of iodine than that could not be given. Alcohol first checks the development of the comma bacilli when it is mixed with the nutrient fluid in the proportion of 1 in 10, a degree of concentration which renders it impracticable for treatment. Common salt was added to the extent of 2 per cent., without influencing the growth of the bacilli. Sulphate of iron, in the proportion of 2 per cent., checks this growth, probably by precipitating albuminates from the fluids, and possibly also by its acid reaction; certainly it does not seem to have any specific disinfecting action—i.e., in destroying the bacilli. Indeed, Koch thinks that the admixture of sulphate of iron with fæcal matter may arrest putrefaction and really remove what may be the most destructive process to the comma bacilli. Hence he would distinguish between substances which merely arrest putrefaction and those which are bactericidal; for the former may simply serve the purpose of preserving the infective virus. Among other substances which prevent the growth of the comma bacilli may be mentioned: alum, in solutions of the strength 1 in 100; camphor, 1 in 300; carbolic acid, 1 in 400; oil of peppermint, 1 in 2000; sulphate of copper, 1 in 2500 (a remedy much employed, but how much would really be needed merely to hinder the growth of the bacilli in the intestine!); quinine, 1 in 5000; and sublimate, 1 in 100,000. In contrast with the foregoing measures for preventing the growth of these bacilli is the striking fact that they are readily killed by drying. This fact is proved by merely drying a small drop of material containing the bacilli on a cover-glass, and then placing this over some of the fluid on a glass slide. With anthrax bacilli vitality is retained for nearly a week; whereas, the comma bacillus appears to be killed in a very short time. Thus it was found that although vitality was retained—depending largely upon the number of bacilli—for a short time, yet withdrawal of the nutrient fluid for an hour or even less often sufficed; and it never happened that the bacilli retained vitality after a deprivation lasting twenty-four hours. These results would seem to point to the fact that the comma bacillus does not, like the organisms of anthrax and vaccinia, pass into the resting state (Daner-zustande) by drying; and if so it is one of the most important facts in the etiology of cholera. Much, however, remains to be done, especially with regard to the soiled linen of cholera patients being kept in a damp state. He found that in soiled articles, when dried for a time, varying from twenty-four hours and upwards, the comma bacilli were quite destroyed. Nor was the destruction delayed by placing choleraic excreta in or upon earth, dry or moist, or mixed with stagnant water. In gelatine cultures the comma bacilli can be cultivated for six weeks, and also in blood serum, milk, and potato, where anthrax bacilli rapidly form spores. But a resting state of the comma bacilli has never been met with—a very exceptional thing in the case of bacilli; and another reason why the organism must be regarded rather as a spirillum than a bacillus. For the spirilla require only a fluid medium, and do not, like the anthrax bacilli, thrive in the dry state. It is quite unlikely that a resting state of the comma bacillus will ever be discovered; and, moreover, its absence harmonises with our knowledge of cholera etiology.

(*To be continued.*)

THE

BIOLOGICAL LABORATORY AT THE HEALTH EXHIBITION.

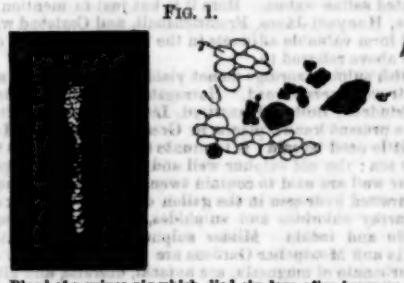
WE propose, in a series of articles, to place before our readers descriptions and illustrations of the chief objects for inspection in the Biological Laboratory of the International Health Exhibition, so ably directed by Mr. Watson Cheyne. In presenting these articles we have aimed at as much brevity as is consistent with lucidity, and have attempted to render the information as interesting and clear as possible by the employment of neat woodcuts. Thus we hope that most of what is at present really known on the subject of bacterial pathology will be brought together in so small a compass as shall be within the limits of leisure which are afforded even to busy practitioners. Moreover, it is our wish to make these articles serve as a catalogue *de luxe* to the Biological Laboratory, our desire, also, being to stimulate the study of the objects themselves.

MICROCOCCUS TETRAGENUS.

This organism is frequently present in phthisical sputa, when destruction of the lung is making rapid progress. When unstained, it closely resembles Sarcinæ. When stained, the groups of which it is composed are seen to be made up of micrococci arranged in fours, the individual cocci lying at regular distances from one another, embedded in a faintly staining hyaline substance. The average diameter of a group of four is about one-third that of a red blood-corpuscle.

In *test-tube cultivations*[1] (C, Fig. 1), the colonies present

FIG. 1.



A, Blood of a guinea-pig which died six days after inoculation. Objective $\frac{1}{12}$ in. *r*, Red corpuscles, unstained. *w*, White corpuscles. C, Test-tube cultivation in gelatinised meat infusion.[1]

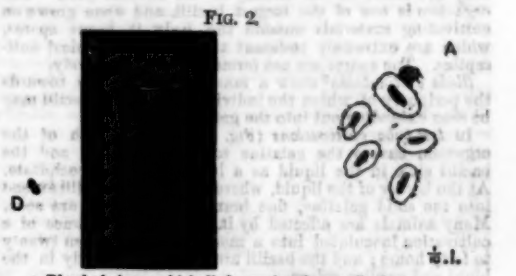
large, clearly defined, cushion-like masses along the course of the needle, which grow to a considerable size. When the micrococcus is inoculated into guinea-pigs and mice, they die in from two to ten days. The characteristic groups of four are found in the capillaries of all the organs, and generally large masses occur, which, when they form in the spleen, may burst through the peritoneal coat and set up peritonitis. The organism does not affect rabbits.

THE BACILLUS OF CHICKEN CHOLERA.

This is a disease of poultry. It is characterised by an inflammation of the duodenum attended with hæmorrhage, and the affected animal becomes profoundly drowsy. The blood is found to contain very minute bacilli, which have the peculiarity of staining deeply at the ends, while the tract between remains unstained, except at the surface. (Fig. 2, D.)

Test-tube cultivations (Fig. 2, C) show minute globular colonies, which never attain any considerable dimensions. They form an opaque growth, marking out the track of the needle. Fowls and pigeons inoculated from the cultivations

FIG. 2.

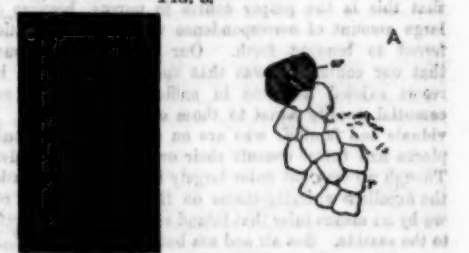


A, Blood of pigeon which died seventeen hours after inoculation from a cultivation of this bacillus. The minute bacilli are seen adhering to the oval nucleated blood-corpuscles. Objective $\frac{1}{12}$ in. C, Test-tube cultivation. D, Diagram of a single bacillus, to show the deeply staining ends, and the faintly stained band between them.

generally die in the course of from seventeen to twenty hours, and the bacilli are found in great numbers in the blood.

BACILLUS OF MOUSE SEPTICÆMIA.

FIG. 3.



A, Blood of mouse which died fifty-six hours after inoculation. Objective $\frac{1}{12}$ in. *r*, Red corpuscles, unstained. *w*, A white corpuscle, stained. C, Test-tube cultivation.

The bacilli of mouse septicæmia are frequently present in decomposing fluids. They are very minute, measuring ·8 to 1 μ in length (Fig. 3, A).

Test-tube cultivations (Fig. 3, C) present a very delicate haziness round the track of the inoculating needle, which contrast strikingly with the opaque colonies formed by other organisms. When the bacillus is inoculated into house mice they die in from forty to seventy-two hours, and the bacilli are found in the blood, frequently within the white corpuscles. The bacillus only affects rabbits and guinea-pigs locally; when inoculated into the ear redness and swelling are produced, which spread over the ear, and disappear in five or six days. After an attack of the disease the rabbit is found to be incapable of being again infected, at least for some time.

BACILLUS ANTHRACIS.

FIG. 4.

A, Blood of an animal inoculated with the bacillus anthracis. Objective $\frac{1}{12}$ in. B, Appearance of the border of a growing patch of anthrax. Slide cultivation. (Vide footnote 2.) Objective $\frac{1}{8}$ in. C, Test-tube cultivation.

This disease affects sheep, cattle, and other animals. In man it takes the form of "woolsorters' disease" and

[1] Test-tube cultivations are prepared as follows. Gelatinised meat infusion is introduced into a test-tube which has been plugged with cotton-wool and sterilised by heat. The whole is then steamed for half an hour on three successive days, and allowed to solidify. When a cultivation is started, a sterilised platinum needle is dipped into the material to be examined, and then plunged into the preparation in the tube, the cotton-wool plug being removed for the purpose. The organisms thus introduced grow along the track of the needle.

"malignant carbuncle." The bacilli are present in the blood in large numbers. In the case of malignant carbuncle they are found in the tissues of the affected part. The organism is one of the largest bacilli, and when grown on cultivating materials outside the body it forms spores, which are extremely resistant to heat and chemical antiseptics. The spores are not formed in the living body.

Slide cultivations[2] show a mass of fine threads, towards the periphery of which the individual chains of bacilli may be seen extending out into the gelatine (Fig. 4, B).

In *test tube cultivations* (Fig. 4, C) the growth of the organism causes the gelatine to become liquid, and the bacilli sink in the liquid as a light flocculent precipitate. At the border of the liquid, where the growing bacilli extend into the solid gelatine, fine branching filaments are seen. Many animals are affected by it. The smallest trace of a cultivation inoculated into a mouse kills it in from twenty to forty hours; and the bacilli are found abundantly in the blood and swollen spleen.

HOME HEALTH RESORTS.

IT is not our intention, in writing this article on Health Resorts at Home, to recommend any particular set of places. The aim we have in view is to justify and amplify by a statement of facts, in more or less detail, the position which we took up in our last issue but one. We are persuaded that this is the proper course to pursue, because of the large amount of correspondence which the annotation referred to brought forth. Our readers will remember that our contention was that spas and places of health resort existed at home in sufficient abundance and in essential quality equal to those on the Continent. Individuals and families who are on the look-out for suitable places had better consult their ordinary medical advisers. Though we may not enter largely into the consideration of the excellent watering-places on the south and east coasts, we by no means infer that inland resorts are to be preferred to the seaside. Sea air and sea bathing are unquestionably powerful agencies in invigorating the constitution in large classes of individuals not necessarily coming under the category of invalids. First of all, it is necessary to point out that a residence at any of the spas implies considerably more than the mere taking of the waters or baths. The patient is influenced by many other agencies, each of which must be taken into consideration in any particular case. Change of climate, scene, diet, exercise, social habits, and occupation, and travelling, all play their part in the good results of so-called balneo-therapeutics.

Let us suppose that the doctor advises a course of simple thermal waters, say, for cases of chronic rheumatism, gout, or affections believed to be related in some way to these diatheses. The Continent being closed, where can the patient be sent? Bath and Buxton both possess fine hot springs. The former city has only a slight elevation, about 100 feet; the latter place is nearly 1000 feet above the level of the sea. The waters of Bath are at a temperature of between 100° and 120° F., those of Buxton are generally a little over 80°. The local and constitutional effects of the waters vary considerably according to the degree of heat. In the waters of Buxton the circulation and nervous system are but little influenced, but the other effects of warm water are all obtained in a satisfactory degree. At Bath the natural waters act more powerfully on the skin, circulatory and nervous apparatus, owing to their greater degree of heat. The soothing effects on the nervous system and muscular irritability are perfectly obtained with *warm*, rather than *tepid* or *hot* baths of water—that is, at a temperature of about 98°. Common salt or muriated saline waters may be had in plenty in England. There is Droitwich, perhaps the strongest of all brines, and possessing good arrangements; Nantwich, Middlewich, Woodhall, and Harrogate. Leamington and Cheltenham likewise contain common salt, in addition to sulphate of soda. Woodhall is very rich in iodides. These waters are of great value in deficient action of the skin; in tendencies to rheumatic fever or bronchitis; in cases of retarded convalescence from acute and chronic illness; in swelling of joints, the results of inflammatory action; in various chronic disorders of the system, such as scrofula and sluggish conditions of the digestive organs. The places named may be regarded as substitutes for Kissingen, Homburg, Kreuznach, Pyrmont, Wiesbaden, Baden-Baden, and other Continental spas.

With regard to alkaline waters it must be confessed that, so far as is at present known, there are no natural British waters which are so rich in the essential element (carbonate of soda) as some of the French and German springs. But where the alkaline waters are specially indicated, as in many forms of dyspepsia, gout, tendency to gall-stones, diabetes, and chronic catarrhal states, the imported waters of Vichy, Apollinaris, Bilin, or Wilhelmsquelle may be employed in conjunction with residence at one or other of the English resorts. Of waters whose chief constituent is either sulphate of soda or magnesia the British Isles possess their fair share. Leamington, Cheltenham, Scarborough, Parton Spa, and Epsom all rejoice in springs of a bitter taste, and containing the sulphates in greater or less proportion. The waters of the first two places mentioned are also rich in common salt. The bitter waters are valuable in habits of constipation with sluggish portal circulation, in tendency to hæmorrhoids, in congestion and enlargement of the liver and spleen, in some varieties of dyspepsia, in gall-stones, lithæmia, and diabetes. Stout plethoric persons do better on these waters than on the muriated saline waters. Here it is but just to mention that Pullna, Hunyadi János, Friedrichshall, and Carlsbad waters would form valuable adjuncts in the treatment of such cases as are above referred to.

British sulphur springs do not yield the palm in any sense to their congeners abroad. Harrogate, Moffat, Strathpeffer, Llandrindrod, Builth, Llanwityd, Lisdoonvarna (co. Clare), are the present known places in Great Britain. Of Harrogate little need be said; it is situate 600 feet above the level of the sea; the old sulphur well and the strong Montpelier sulphur well are said to contain twenty-five cubic inches of sulphuretted hydrogen in the gallon of water, with alkaline and earthy chlorides and sulphides, as well as traces of bromide and iodide. Milder sulphuretted springs at the Victoria and Montpelier Gardens are also in use; they contain carbonate of magnesia, are antacid, diuretic, and alterative. The social resources of Harrogate and the pleasant climate attract many classes of invalids, but the most suitable cases for treatment by the waters are—dyspepsia with inactivity of liver and bowels, especially when due to high living; constipation, obesity, swellings of joints and glands, chronic skin diseases, gout, rheumatism, and syphilis; some cases of disordered menstruation, and also some of incipient phthisis, may be sent to Harrogate with advantage. Moffat, in the upper part of Annandale, is 400 feet above the level of the sea, with a good climate and picturesque surroundings. The cold waters contain two and a half cubic inches of sulphuretted hydrogen in the pint of water, also twenty-two grains of chloride and two grains of sulphate of soda. Strathpeffer is a rising spa in Ross-shire, and has several cold sulphur springs as well as chalybeate waters of some value, as Mr. Berkeley Hill pointed out in the last volume of THE LANCET, p. 793. Llandrindrod, Builth, and Llanwityd are situate in Radnorshire; the climate at these places is pure and bracing. Chalybeate waters may be found fairly pure at Tunbridge Wells, Strathpeffer, and Harrogate. At Brighton there is a spring, now but little used, which contains sulphate of iron in small amount. Malvern, Bournemouth, Sandown, and many other health resorts possess chalybeate waters more or less available. The various forms of anæmia are most benefited by these waters, especially when the "poorness of blood" is due to hæmorrhage, suppuration, and previous acute or chronic disease. The chylopoietic viscera must, however, be in good working order. In anæmia associated with congestive states of the liver and intestines, a previous course of saline water is generally indicated. Cases of

[2] A slide cultivation is prepared in the following way. Gelatinised meat infusion which has been rendered sterile by heat is poured on a sterilised glass slide, and allowed to solidify. A sterilised platinum wire is then dipped into a growth of the organism which is to be examined, and drawn rapidly over the surface of the preparation on the slide. The bacteria are sown at intervals along the track of the wire, and as they grow form characteristic colonies. They may be observed in process of growth under the lower powers of the microscope.

neuralgia, sterility, and impotency may be benefited by the use of the iron waters, which act by invigorating the whole constitution.

Earthy and calcareous waters, so called, are rather scarce in Great Britain. The waters of Bath, Buxton, and Bristol, however, contain a certain proportion of the carbonates and sulphate of lime and carbonate of magnesia. These waters are of value in digestive troubles with tendency to acidity and diarrhœa. They may be employed i osteomalacia, rickets, and tuberculosis, and in some cases c. eczema and psoriasis. Ilkestone, near Nottingham, is a sparkling water, the carbonic acid of which holds carbonates of lime and magnesia in solution.

We cannot conclude this brief outline without expressing our belief that the increasing call for home health resorts would be followed by a great improvement of already existing spas, with a further development of their resources, and, moreover, looking to the geological conformation of these islands, we are strongly of opinion that judicious borings would lead to the discovery of deeply rolling watercourses, the waters of which might be rich in many of the constituents in which British waters in present use are wanting.

CHOLERA AND QUARANTINE.

THE cholera epidemic in the south of France still continues to subside, both in Marseilles and Toulon, and also in the other localities to which it had spread. In Italy the imported disease makes no substantial headway, and it may be hoped that with due sanitary precautions it will not now do so. Two further arrivals of infected vessels in this country have so far been unattended with any harm. At Cardiff the orders of the Local Government Board have been fully complied with in the case of the recently arrived vessels on which deaths had occurred since leaving Marseilles, and the system on which the Government relies has proved successful.

Two systems have now been fully tested. A large number of European countries, notably Italy and Spain, have trusted to the old quarantine measures with sanitary cordons. England, Switzerland, Germany, Austria, Holland, and Belgium have left their ports and their land boundaries free from these antiquated encumbrances. All the latter countries have hitherto remained free from the infection, although in our own country alone has the alternative system of inspection and isolation been in any way put to the test. Of the two countries where quarantine has been relied on, Spain has hitherto remained free from imported cholera; but in Italy, where the sanitary cordon has been maintained with the utmost stringency practicable, and where the lazarettos still contain some thousands of persons who entered the country quite free from infection, the disease has spread to a number of neighbouring places, and has already caused some thirty deaths. This result has led many Italians to inquire whether the quarantine game is worth the candle. The *Opinione* points to the fact that the country has surrounded itself with a Chinese wall, but that the disease has, notwithstanding, found an entrance; whilst the countries trusting to the system of inspection and isolation which received the assent of the last Vienna Conference have entirely escaped. Hygienically, nothing has been gained to Italy; whereas, commercially, the loss has been great. And not only so, but the very lazarettos themselves are so disgracefully organised from a health point of view, that the Italians are by no means clear that these institutions have not themselves tended to bring about the very conditions favourable to the development of the cholera poison by the aggregation of large numbers of persons under circumstances of the most unwholesome sort. Filth in its various and most offensive forms seems to reign along the line of this cordon, which is misnamed "sanitary," and persons who have been detained there have sickened and died in consequence, some after they have been permitted to leave. We thus have over again, although on a much smaller scale, the Egyptian experience of 1883—namely, stringent quarantine measures, and cholera not only passing through them as if they did not exist, but in all probability aggravated by their very existence. All modern experience thus tends to prove the wisdom of the English system, and it is highly probable that the abandonment of quarantine, as hitherto carried out, may, as regards many European countries, be the outcome of the epidemic of 1884.

It has been ascertained that cholera made its appearance at Marseilles last year, a case of cholera, followed by death having occurred at the hospital, in a room containing numerous other patients. The disease made a good many victims. The mayor, who was immediately advised of the fact, proceeded to the hospital. Energetic measures were taken to prevent further contagion, and in order to avoid panic in the town the mayor solicited and secured the silence of all persons aware of the facts. The head surgeon, two house surgeons, a warder, and two sisters of mercy took an oath to divulge nothing, and this oath was strictly kept till the 4th inst., when the circumstance was made known to the Medical Committee. Dr. Poucel delivered an address on the 6th inst. to the Medical Society of Marseilles on the Propagation of Cholera. He inclines to think, with Dr. Colin, in opposition to Dr. Koch's theory, that the germs are conveyed in the air. Dr. Jules Patras, a medical man attached to the Bureau d'Assistance, has succumbed to the epidemic after an illness of only a few hours. He is the first physician in Marseilles who has been struck down by cholera. At Rome the total number of persons in quarantine on the 5th inst. was 3025. At Toulon further complications are threatening, typhoid fever and small-pox having made their appearance among the convalescents at the Bon Rencontre and St. Mandrier establishments.

The health of Paris continues to be satisfactory, the deaths during the week ending the 2nd inst. being 993, as compared with 1062 in the previous week. One death was attributed by the medical men to cholera, the victim being a worker in copper. He was carefully isolated. There were four fatal cases of diarrhœa. The number of strangers leaving Paris is still slightly in excess of the arrivals—viz. 23,489, against 22,314. This is, of course, very unusual at this season.

A Bill has been introduced by Mr. Gray, M.P., with a view to making better provision against cholera and other epidemic diseases.

On the 30th ult. Professor de Chaumont made an exhaustive inquiry as to the sanitary precautions taken in Portsmouth town and garrison in view of a possible outbreak of cholera. The result of the inquiry is believed to be satisfactory, but it will not be known until the official report is made.

Some uneasiness has been caused at Northampton by an outbreak of English cholera. The town all the summer through has been suffering from scarcity of water. In their extremity the inhabitants have had recourse to impure springs, and the sewers have given off noxious exhalations for want of flushing. Several members of the family in which cholera first broke out have been affected.

QUARANTINE AND INFECTED PORTS.

NOTICES to the following effect have been published in the *London Gazette* of the 1st and 5th inst.:—

A quarantine of five days is imposed at the frontier of the Tyrol on all persons entering Italy.

Vessels with cholera patients on board, and bound for Norwegian ports, are to be taken by the pilots to the quarantine station at Christiansund.

All vessels arriving at Gibraltar from France are required to quit the port without communication, save under special circumstances.

At Constantinople the quarantine on arrivals from France has been raised to fifteen days, and on arrivals from Brindisi, Trieste, Leghorn, Spezzia, and the Black Sea ports to ten days. Travellers from the above and other infected ports will not be allowed to disembark at Scutari until they have completed quarantine in Corfu.

Arrivals at Teneriffe of vessels from British possessions in the Mediterranean which have sailed since July 16th will be subjected to quarantine.

The quarantine at Bagdad against arrivals from Bedra Jassan and neighbourhood has been removed.

A PLOT of ground, five acres in extent, has just been secured at Bolton-le-Moors on which to build a convalescent home, for the erection and endowment of which £30,000 was in 1870 left by the late Mr. Stephen Blair.

CASSAN *VERSUS* FYFE.

THE report of a trial of great interest and of grave importance to medical men, at the recent assizes at Lincoln, has reached us. Judging from the report, the facts are briefly these. The action was for slander, in which Mr. Theodore Cassan, L.R.C.P. Edin., M.R.C.S., of Gainsborough, was the plaintiff, and Dr. George Fyfe, of the same place, was the defendant. It is not without interest to notice some of the antecedents of these gentlemen. Mr. Cassan, before settling in Gainsborough, had been house-surgeon of the Training Hospital at Tottenham and house-surgeon of the Royal South Hants Infirmary. Dr. Fyfe had been house-surgeon of the Edinburgh Infirmary, and also of the Chester Infirmary. Clearly they are both gentlemen of experience in surgery, and should be alike capable of appreciating the difficulties and amenities of surgical practice. The slander complained of will appear from a brief statement of the case. On Friday, Feb. 1st, about half-past twelve in the day, Mr. Cassan, who is surgeon to the Britannia Sick Club, with about 1800 or 1900 members, and giving its surgeon about £360 a year, was applied to at his surgery by a member of the club named Howard, suffering with retention from old stricture of the urethra. Mr. Cassan had attended Howard in similar circumstances three years before. On this occasion matters were made worse by recent drinking, and by Howard being actually under the influence of drink when he first applied for relief of retention. Mr. Cassan at first failed to pass a catheter, but after giving Howard a draught composed of bromide and henbane, and enjoining half an hour's rest, succeeded without any difficulty whatever. He emptied the bladder completely, and gave the patient some medicine. He also told him that he was in a bad state, and advised him to go into the Lincoln Infirmary at once. The next day he called at Howard's house, used the catheter, and repeated his advice to go to the hospital. This he refused to do, saying that Mr. Cassan had pulled him through before, and would do so again. On Sunday, according to Mr. Cassan's account, Howard was much better, and had passed a good deal of urine. He did so in his presence. He still had symptoms of great constitutional disturbance, such as might be expected in a man of his habits, with an old stricture. On the Monday Mr. Cassan found him "much worse." He had much pain; he had passed no urine since the previous evening; he was very drowsy, and his pulse was failing. Mr. Cassan again introduced the catheter and emptied the bladder. He came to the conclusion that the patient would die. On Tuesday he was visited by Mr. Cassan's qualified assistant, Mr. Tatham, but refused to have the catheter passed, saying that he had voided urine in the bath. On Wednesday, when the assistant called again, Mr. Tatham found that Dr. Fyfe had been called in. On Thursday the patient died. The action for slander arose out of reports of the language held by Dr. Fyfe in regard to the previous treatment adopted by Mr. Cassan. About this there was the discrepancy, not unusual, between what the patient's friends reported (and in this case confirmed by other evidence of persons officially connected with the club) the doctor had said to them, and what he admitted having said. According to the former version, Dr. Fyfe had said that in the course of his experience he had never seen a man more shamefully treated; that the penis was black; that instruments must have been forced; and that the internal injuries done by these must have been as great as the external. Mr. Wharton, the vice-chairman of the club, said that Dr. Fyfe said to him, in answer to a question, that he "thought he could have cured the patient, and that any competent surgeon could have done so if he had been called in at first." When Mr. Cassan heard of these reports, he immediately applied to Dr. Fyfe by note for an explanation of them and a denial. He did this early on the Sunday morning following Howard's death, with the hope partly of securing a post-mortem examination before the funeral, which was to be held on that day. The envelope carrying Mr. Cassan's letter was returned by Dr. Fyfe with the following reply in pencil:—

"DEAR SIR,—I know nothing of the reports you allude to.—Yours faithfully, GEORGE FYFE."

The case became more serious for Mr. Cassan as the reports and complaints of the widow and friends reached the committee and officers of the club. The club appointed a committee to inquire into the facts, and the evidence of the widow and of one or two friends, and of the vice-chairman of the club and other officers, made the case a very long one, and, as it proved, serious in its conclusion. It is due to Dr. Fyfe to say that he disavowed many of the strong statements attributed to him, and that he declared that the accounts he received of the relief afforded by Mr. Cassan were much less favourable than those given in the evidence of the plaintiff and his assistant. He did not admit having said he could have "cured" the patient, only that he could have "relieved" him. In the end the Judge ruled that the statements attributed to Dr. Fyfe had not been proved, except, perhaps, such as were made to the representatives of the club. And—here is the serious part of the trial—he decided that these were not volunteered, that they were elicited as answers to questions, and that therefore they were "privileged." The question of privilege is one of law: for a judge, and not for a jury. Accordingly, his Lordship took it into his own hands, and directed the jury to find for the defendant, but agreed to stay execution for a fortnight, within which time notice of appeal must be given.

As leave has been granted for an appeal, and the matter is therefore *sub judice*, we reserve comment on the above important case.

ARMY MEDICAL SCHOOL, NETLEY.

THE forty-eighth session of the above school terminated on the 4th inst., when the results of the final examinations for commissions in the Medical Departments of the British and Indian Services were declared, the prizes awarded, and the business of the term concluded.

Lieut.-General Sir George Willis, K.C.B., commanding the southern district, attended by his staff and the principal medical officer of the district, arrived at Netley from Southsea at 12.30 P.M., and immediately proceeded to the lecture hall, where the staff of Netley Hospital and their guests, with the professors of the school and other visitors, were assembled. The Director-General of the Medical Department and the Physician to the Council of India were unable to attend, and we regret to say that Surgeon-General Murray, principal medical officer of the Royal Victoria Hospital, was also absent from indisposition.

The usual official documents reporting the work of the session were read, with the names of the surgeons on probation for both services reported fit to receive commissions according to the list printed in another column. It will be seen that the Herbert Prize of £20, the Montefiore Medal, with the same sum in money for Military Surgery, and the Martin Memorial Gold Medal for Military Medicine were won by Mr. J. H. T. Walsh, of H.M. Indian Service. The second Montefiore Prize for Military Surgery was gained by Mr. G. B. Russell, of the Army Medical Department. The Parkes Memorial Bronze Medal for Hygiene was awarded to Mr. C. Birt, of the same service. Mr. H. Hendley, of H.M. Indian Service, was the successful competitor for the Director-General's prize for Pathology.

Sir GEORGE WILLIS, after presenting the prizes, addressed the gentlemen whose course of study at Netley had been successfully ended. The General offered them his hearty congratulations, and in the kindest manner gave them some useful hints as to their future career in the service, the result of much experience in peace and war, urging them never to relax their efforts to keep abreast of a constantly advancing profession; reminding them that, like officers in other branches of the service, their efforts in this direction would under recently published regulations be tested before promotion. Sir George hoped they would cultivate good relations with other branches of the service, by whom their skilful services would be appreciated, and wished them, one and all, a successful and honourable career.

Professor LONGMORE repeated the good wishes and congratulations of himself and his colleagues, and in their name bade them a hearty farewell, declaring the business of the session ended.

The company then adjourned to the handsome mess room of the department, where a sumptuous luncheon was served. Among the guests were some of the officers of two ships of the United States Navy; one the *Lancaster*, bearing the flag of Rear Admiral Nicoll Ludlow.

HEALTH IN WORKSHOPS.

ON the 31st ult., Mr. J. B. Lakeman, inspector under the Factory Acts, delivered an address in the lecture-room at the Health Exhibition on this subject. He stated that as a nation this country was very backward in sanitative education, and that the laws of ventilation were sadly neglected by employers of labour. Needle-makers, file-makers, grinders, and moulders suffered in lungs to the extent of 50 per cent., flint-cutters of 80 per cent., grindstone-makers of 40 per cent., cigar-makers of 36 per cent, weavers of 25 per cent. (the fibre of cotton being most injurious), brush-makers of 49 per cent., and hat-makers of 15 per cent. (the dust from cheap hats being more injurious than that from the fine felt). Speaking of the want of ventilation and sanitation in factories, he said that in this category they should exclude textile mills, not generally, but particularly. He advocated, however, that all factories should be placed on the same level, as the law said should be the case. Coming to the trades under the Act of 1867, such as printers, bookbinders, bakers, artificial flower makers, and dyers, Mr. Lakeman mentioned that these industries in many cases were not conducted under proper lines of ventilation, and referred to the great importance of pure air in keeping workers in health, remarking that the conditions of work in closely confined, overcrowded, and ill-ventilated workshops was something unbearable, and the consequences were fatal to robust life. In the course of the address the author described, with the aid of a diagram and practical experiments, what he regarded as a proper system of ventilation.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In twenty-eight of the largest English towns 5851 births and 3909 deaths were registered during the week ending the 2nd inst. The annual rate of mortality in these towns, which in the six preceding weeks had increased from 18·7 to 24·9 per 1000, declined last week to 23·3. During the first five weeks of the current quarter the death-rate in these towns averaged 22·8 per 1000, against 23·1, 19·3, and 20·6 in the corresponding periods of 1881, 1882, and 1883. The lowest rates in these towns last week were 12·7 in Huddersfield, 14·5 in Bristol, and 15·2 in Plymouth. The rates in the other towns ranged upwards to 28·7 in Leicester, 28·9 in Liverpool, 31·2 in Norwich, and 34·6 in Preston. The deaths referred to the principal zymotic diseases in the twenty-eight towns, which in the two preceding weeks had been 1257 and 1246, further fell last week to 1035; these included 689 from diarrhœa, 109 from measles, 76 from whooping-cough, 74 from scarlet fever, 48 from "fever" (principally enteric), 21 from diphtheria, and 18 from small-pox. These diseases caused the lowest death-rates last week in Birkenhead and Huddersfield, and the highest rates in Bolton, Leicester, and Preston. The highest rates of mortality from diarrhœa were recorded in Nottingham, Norwich, Salford, Leicester, and Preston; from measles in Blackburn and Bolton; from whooping-cough in Leeds and Sunderland; from scarlet fever in Sheffield and Cardiff; and from "fever" in Blackburn and Halifax. The 21 deaths from diphtheria in the twenty-eight towns last week included 16 in London. Small-pox caused 17 deaths in Greater London (exclusive of 8 metropolitan cases registered outside Registration London), 2 in Liverpool, 2 in Hull, 2 in Sunderland, and 1 in Sheffield. The number of small-pox patients in the metropolitan asylums hospitals situated in and around London, which had declined from 1368 to 1035 in the three preceding weeks, had further declined to 892 at the end of last week; the number of new cases admitted to these hospitals also fell to 66 last week, from numbers declining from 354 to 105 in the six previous weeks. The Highgate Small-pox Hospital contained 45 patients on Saturday last, 2 new cases having been admitted during the week. The deaths referred to diseases of the respiratory organs in London, which had declined from 231 to 159 in the four previous weeks, rose last week to 198, and exceeded the corrected average by 17. The causes of 79, or only 2·0 per cent., of the deaths in the twenty-eight towns last week were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Norwich, Bristol, and in four other smaller towns. The largest proportions of uncertified deaths were recorded in Oldham, Birkenhead, and Halifax.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been equal to 21·0, 22·8, and 23·3 per 1000 in the three preceding weeks, declined to 20·6 in the week ending the 2nd inst.; and was 2·9 below the mean rate during the same week in the twenty-eight large English towns. The rates last week in the Scotch towns ranged from 13·4 and 14·1 in Perth and Leith, to 22·3 in Paisley and 24·4 in Glasgow. The 498 deaths in the eight towns included 40 which were referred to diarrhœal diseases, 23 to whooping-cough, 16 to measles, 11 to scarlet fever, 3 to "fever," 2 to diphtheria, and not one to small-pox; in all, 95 deaths resulted from these principal zymotic diseases, against 116 and 85 in the two preceding weeks. These 95 deaths were equal to an annual rate of 3·9 per 1000, which was 2·3 below the mean rate from the same diseases in the twenty-eight English towns. The deaths referred to diarrhœal diseases, which had been 57 and 43 in the two previous weeks, further declined to 40, but exceeded the number in the corresponding week of last year by 7; they included 21 in Glasgow, 8 in Edinburgh, and 4 in Dundee. The rate of mortality from diarrhœa last week in the Scotch towns did not exceed 1·7 per 1000, against 4·1 in the large English towns. The 23 deaths from whooping-cough slightly exceeded the number in the preceding week, and included 12 in Glasgow, 7 in Edinburgh, and 3 in Greenock. The 16 fatal cases of measles considerably exceeded those registered in recent weeks; 10 occurred in Glasgow and 4 in Dundee. The 11 deaths from scarlet fever, which also showed an increase, included 8 in Glasgow, where all the 3 fatal cases of "fever," as well as the 2 of diphtheria, were also recorded. The deaths referred to acute diseases of the respiratory organs in the eight towns, which had been 60 and 59 in the two preceding weeks, declined last week to 66, and were 10 below the number returned in the corresponding week of last year. The causes of 76, or more than 15 per cent., of the deaths in the eight Scotch towns last week were not certified.

HEALTH OF DUBLIN.

The rate of mortality in Dublin, which had declined in the three preceding weeks from 22·3 to 19·3 per 1000, rose again to 23·0 in the week ending the 2nd inst. During the first five weeks of the current quarter the death-rate in the city averaged 21·5 per 1000, the rate during the same period being equal to 22·9 in London and 17·3 in Edinburgh. The 155 deaths in Dublin showed an increase of 25 upon the declining numbers in recent weeks, and included 22 which were referred to the principal zymotic diseases, against 24 and 16 in the two preceding weeks; of these, 11 resulted from diarrhœal diseases, 6 from "fever" (typhus, enteric, or simple), 5 from scarlet fever, and not one from small-pox, measles, diphtheria, or whooping-cough. These 22 deaths were equal to an annual rate of 3·3 per 1000, the rate from the same diseases being 6·1 in London and 3·6 in Edinburgh. The 11 deaths from diarrhœal diseases considerably exceeded the numbers in recent weeks; the fatal cases of "fever" also showed an increase, while the 5 deaths referred to scarlet fever corresponded with the numbers in each of the two preceding weeks. Seven inquest cases and 4 deaths from violence were registered in the city last week; and 48 deaths were recorded in public institutions. The deaths of infants showed a marked excess, owing principally to the increased prevalence of summer diarrhœa, while the deaths of elderly persons were fewer than those returned in recent weeks. The causes of 23, or nearly 15 per cent., of the deaths registered during the week were not certified.

PUBLIC HEALH IN SWITZERLAND.

THE Swiss Statistical Bureau has just issued its official return of mortality statistics for the principal towns of Switzerland, relating to the three months ending June last. The return embraces all the Swiss towns having a population exceeding ten thousand persons (fifteen in number), and

having an aggregate population of rather less than half a million of persons. The mean annual death rate during the quarter in these towns was 24·7 per 1000, and was 1·3 below the mean rate in the same towns in the corresponding quarters of the eight years 1876–83. With reference to the recent prevalence of zymotic disease in Switzerland, it may be noted that, excepting only typhoid fever, it showed a decline last quarter, somewhat similar to the decline in the general death-rate. It is necessary, however, to refer to the epidemic of typhoid fever which has recently been so fatal in some parts of the country. The deaths from this disease in the fifteen Swiss towns were 228 in the second quarter of this year, against 64, 41, and 18 in the three preceding corresponding quarters. These 228 deaths were equal to an annual death-rate of 2·0 per 1000 in the Swiss towns, which was six times the rate from "fever" in the twenty-eight English towns during the same period. The epidemic was mainly confined to two centres of infection. In Zurich and its suburbs, with a population of 82,846 persons, the deaths from typhoid fever were 127, equal to 7·3 per 1000; while in Geneva and its suburbs, with a population of 70,765, the fatal cases were 82, and equal to 4·6 per 1000. In the thirteen other towns the deaths from this disease in the three months did not exceed nineteen. Towards the end of June the epidemic of typhoid fever in Geneva and Zurich had almost died out. More recently, however, a recrudescence has occurred in Geneva and its suburbs, and the recorded deaths from this disease, which had been 1 and 3 in the first two weeks of July, further rose to 10 in the third week of that month.

THE SERVICES.

THE COMPOSITION OF MEDICAL BOARDS.

A circular of the Government of India, Military Department, notifies a change in the composition of medical boards for the examination of officers of the Indian service proceeding on furlough on medical certificate, whether within or beyond Indian limits. Under the regulations now superseded, an officer of the Indian service, who can be granted furlough for a longer period than an officer of the British service, had to appear before a local medical board, presided over by an administrative medical officer, at the headquarters of divisions and districts, except in emergent cases, when a special medical board could be convened by the officer commanding the station. It has now been decided that all officers of the Indian service are in future to appear before local medical boards, composed of such officers as are available on the spot, subject to the conditions detailed in section 13 of the Regulations for the Medical Department, Bengal, 1882.

ARMY MEDICAL DEPARTMENT.—Brigade Surgeon Randolph Webb, to be Deputy Surgeon-General, vice W. Stewart, M.D., granted retired pay; Brigade Surgeon Richard Chapman Lofthouse, M.D., is granted retired pay, with the honorary rank of Deputy Surgeon-General; Surgeon-Major Albert Stanley Knight Prescott, to be Brigade Surgeon, vice R. O. Hayden, retired upon temporary half-pay; Surgeon-Major John Culahan, M.D., to be Brigade Surgeon, vice R. Webb, promoted; Surgeon-Major Thomas Walsh, to be Brigade Surgeon, vice J. H. Whittaker, granted retired pay; Surgeon-Major David Arthur Leslie, M.D., is granted retired pay, with the honorary rank of Brigade Surgeon.

ADMIRALTY.—Staff Surgeon Alexander Scott has been placed on the retired list of his rank.

The following appointments have been made:—Surgeon George J. Fogerty to Chatham Dockyard; Surgeon James S. Wray to the *Banterer*; Surgeon William M. Rae to the *Mistletoe*; Fleet Surgeon W. J. Eames, additional, to the *President*; and Staff Surgeon T. L. Horner, additional, to the *President*.

RIFLE VOLUNTEERS.—1st Cambridgeshire: John Parkinson Atkinson, Gent., M.D., to be Acting Surgeon.—1st Dumbartonshire: Acting Surgeon James Stevenson, M.B., resigns his appointment.—4th Lancashire: William Mitchell Roocroft, Gent., to be Acting Surgeon.—3rd Volunteer Battalion, the Prince Albert's (Somerset-hire Light Infantry): Surgeons Henry William Livett and William Harford Glover Phelps, M.D., are granted the honorary rank of Surgeon-Major.—1st Stirlingshire: Alexander Duncan Fraser, Gent., M.B., to be Acting Surgeon.

Correspondence.

"Audi alteram partem."

CHESELDEN AND LITHOTOMY.

To the Editor of THE LANCET.

SIR,—Although Cheselden has been dead upwards of 130 years, perhaps you may find space in your columns for some extracts from the minutes of meetings of the governors of St. George's Hospital relative to him and the performance of lithotomy. The first surgeons to that hospital were appointed on October 19th, 1733—viz., Amyand and Dickens (serjeant surgeons) and Mr. Wilkie; and on the 22nd Cheselden, then surgeon to St. Thomas's Hospital and lithotomist to the Westminster (then Infirmary) Hospital, was appointed surgeon also, and, as it would appear, solely to perform lithotomy; for at a court of governors held on April 1st, 1737, the minutes state:—"Mr. Cheselden, who had from the foundation of the hospital cut the patients for the stone, now desiring to resign, and proposing that another surgeon be chosen for that operation—resolved, that the thanks of the court be given to Mr. Cheselden for his great care and trouble in and about the operation aforesaid." It was then proposed that a court be called to supply his place, and on April 22nd "the court resolved, on the motion of Mr. Raaby, after proper consideration, that it would be of most advantage to the patients, and more to the credit of the hospital, that one only of the surgeons in ordinary be chosen to succeed him; thereupon Mr. David Middleton was unanimously chosen to succeed him. Mr. Middleton was called in, and accepted the office with thanks." At a court held on April 6th, 1745, "David Middleton, Esq., having informed the court that he desired to resign the particular operation for cutting for the stone, as confined to him, but to perform the same in his turn with the other surgeons of this house—ordered, that the consideration of proper persons to perform that operation be referred to the next court"; and on April 27th "it was ordered that the operation of cutting for the stone be left to such of the surgeons of this hospital as think proper to perform the same." Cæsar Hawkins, so eminent as a lithotomist, had then been ten years surgeon to the hospital. In 1864 I saw at an engraver's a plate of a portrait of Cheselden, and, on asking how it came there, I was informed that it had been sent to be destroyed by a relative who was affronted at the little interest taken by the medical profession in the memory of her ancestor. I requested leave to have an impression taken before the destruction, which was courteously granted me. The copy, taken one hundred and eleven years after the likeness was executed, I presented to the Royal Medical and Chirurgical Society, as well as one of his works containing his own autograph and that of Prout and Brodie. Cheselden was appointed surgeon to the Royal Hospital at Chelsea in 1737, where he died on April 10th, 1752. A handsome tomb was placed over his grave in the burial-ground of that hospital. On visiting it lately I found it fast going to decay: a little cutting of the stone might still preserve some memorial of this eminent surgeon. Next to him is buried Sir Everard Home, also surgeon to this hospital.

I am, Sir, your obedient servant,

Savile-row, August 4th, 1884. CHARLES HAWKINS.

P.S.—I have presented to the Royal Medical and Chirurgical Society H. Dekker's "Exercitationes Practicæ," edition 1695. At page 193 there is depicted an operation of removing a crushed calculus. I should like opinions as to what this operation was.

THE CHOLERA.

To the Editor of THE LANCET.

SIR,—The subject of cholera is of perennial moment, but it never was more so, we might say, than at the present juncture, in consequence of its prevalence in France. In reference to a letter published in your current issue by Dr. John Roche, retired list of Her Majesty's Indian Medical Service, it should be noted that the malarial view of its etiology is by no means a novel one, as it was forcibly brought under the notice of the profession by Dr. Scriven, retired list of the Indian Medical Service, as long back as 1866 (*vide*

THE LANCET of that year, vol. ii., p. 184, *et seq*); and about twelve years ago I remember reading its revival in the columns of a contemporary medical journal, by Dr. Smith. It was under the assumption of a malarial origin of the malady that quinine was indicated and prescribed by mouth and subcutaneously, but it has signally failed to answer, and that reason alone ought, *pro tanto*, to cast into oblivion a view, or a theory, or whatever else we may call it, which has been found to be erroneous. I need scarcely mention in this connexion the absence—or, at any rate, comparative immunity—of cholera in many malarious regions, not only of India, while at other non-malarious places it rages with considerable virulence. That the malarial theory of the origin of cholera is now exploded cannot be gainsaid. Evidence is not wanting to prove that in healthy (non-malarious) regions, such as in some of the tea plantations in India, cholera has frequently been rife, from being imported, of course, while fevers of an ague type have been conspicuous by their absence. Mr. Vincent Richards, medical officer of emigrants, cites some interesting instances of importation among the coolies (labourers) emigrated to the tea gardens in Assam from foci of infection. (*Indian Medical Gazette*, April and May, 1881; and Jan. 1884.) I cannot understand how or for what reason Dr. Roche attributes to Sir Joseph Fayrer his support of the malarial hypothesis, for I do not remember reading anywhere his advocacy of such a view. One of his last utterances on the subject was at the International Medical Congress at Amsterdam recently, and he is then reported to have said that he "felt that after twenty-four years' experience he was totally and absolutely ignorant of the cause of the disease." It is idle to rest on that belief in these days of advance, when the germ theory of disease is making such rapid strides; but while we may be duly indebted to modern workers, we cannot forget former ones in the same field of research, for Mr. C. Macnamara long ago advanced this view of the origin of cholera and its propagation. And subsequently Drs. Lewis and Cunningham have tended to confirm that view, though without succeeding in discovering a particular and characteristic virus of cholera. Concerning the germ theory view and my own observations on cholera in the new-born, Dr. Roche writes:—"The cholera witnessed by Dr. Lucas in new-born children discards at a stroke the fungus theory." Now, I venture to hold that that circumstance, on the contrary, tends to afford a great support to the germ theory view. The cholera virus containing the bacilli would appear to have infected the babes through the maternal and placental circulation before birth in some instances, and in others after birth, through the mammary secretion. The doctrine of evolution is fast throwing aside all notions and dogmas concerning origin *de novo* or spontaneous generation alike of disease as of creatures in the animal and vegetable kingdoms. It is, therefore, hardly tenable, I beg respectfully to observe, to write as he does: "I trust no one believes that cholera or its contagium existed in the Ark as a specific thing; this being granted, it follows that cholera may under extraordinary and exceptional circumstances arise spontaneously." Now, might we question that which is rendered a premise for his argument, what scientific evidence have we that such a thing as the Flood or Deluge took place, and that Noah and his people, his mammals, birds, and reptiles, alone were saved in the Ark?

Dr. Roche says that he is ready to swallow "any amount of Prof. Koch's bacilli, provided they are well washed in distilled water until the colour of the permanganate is slowly affected." As Koch is now exhibiting the bacilli at Paris from cases which occurred at Toulon and Marseilles, Dr. Roche, by proceeding to Paris, will have an opportunity of trying the experiment he refers to. At the same time, I trust he will not undertake so fatal an experiment, and make an untimely call on his friends to mourn their loss.

I am, Sir, yours truly,

Edinburgh, July 21st, 1884. JOHN C. LUCAS.

To the Editor of THE LANCET.

SIR,—A considerable amount of discussion is going on at the present time in France and elsewhere as regards the propagation of cholera by the agency of the air. A residence of several years in India and experience gained in several severe epidemics of that disease must be my apology for asking you to be so good as to insert the following remarks in your valuable journal, as facts coming under my own notice, and proving, I think, that the agency of the air in the diffusion of cholera may sometimes exist as the chief, if not only, factor.

From what is known of the whole life of the lowest organisms, it is undoubted that they possess the faculty of living in the air, as well as when attached to different solid substances, but they lead a much less active life, and their capacity for increase is much diminished outside of fluids; developing, however, dangerous energy when moistened, as seen in the infection of those who had been employed in washing the linen or other articles used by cholera patients. In my own experience, I have seen cholera cases appear simultaneously in various houses and barracks at a station where none existed before, and where none existed within a very great distance from the locality. And not only did these cases appear all within the same hour, usually in the night time, but, taking a line from the house on the outermost part of the station, it was found that the epidemic followed a straight or sometimes a diagonal course through the whole place, as if wafted through the open doors or windows in a current of air, and, seizing its victim or victims, passed on to the next building straight in its direction, leaving those to the right or left untouched, to attack those in the succeeding house. In one instance I saw a cholera epidemic follow the occurrence of a dust storm in India, which broke on the Rock of Gwalior one afternoon in the month of June, 1867, after skirting the cantonment of Morar, some four miles away. It was accompanied by rain and hail, dust and sand, with a high wind, and it passed away as rapidly as it appeared, but directly after its passage cholera broke out, attacking simultaneously the European and native soldiers in the barracks of the fortress on its summit, as also men employed at work on various parts of the Rock. Not a single case of cholera existed either in the town of Gwalior, in Morar, or in any of the villages for a great distance round, nor had done so for a considerable time previously; and I may add that this same phenomenon was observed in 1881 at the same place by the medical officer then in charge of the fortress, confirming what I myself had observed fourteen years before; this can only be put down as an outbreak of the disease occasioned by the transport thither of the cholera germs by the agency of the air, its dangerous qualities being probably heightened by the rain falling at the time.

I am, Sir, yours truly,

W. WAKEFIELD, M.D. Univ. Glasg. & Paris,

July 21st, 1884. Late Army Medical Department.

"THE LOSS OF THE MEDICAL BILL."

To the Editor of THE LANCET.

SIR,—As some victories are hardly distinguishable from defeats, so some apparent losses turn out in the end to be real gains, and among these latter I agree with you in thinking that we must reckon the loss of the Medical Bill. As proposed to be amended (?) by Sir Lyon Playfair, it would have provided for an examining board in each division of the kingdom, to be kept up as a standard of what such boards should be; while at the same time, by the device of appointing coadjutor examiners to university and conjoint board examinations, it would have rendered it unnecessary for a single student to pass the new boards. In at least two divisions of the kingdom it would clearly have been the interest, and probably the desire, of those bodies whose representatives formed the divisional boards to ensure the failure of the new examining boards, while, failure or no failure, the examinations must have continued to be held while the Act remained in force, and the double expense of these and the coadjutor examiners must have come out of the pockets of somebody in the profession or of those just entering it. It would surely have been a great misfortune to have had such a system as this fixed upon us for the next quarter of a century or so, and no pains should, I think, be spared to prevent the possibility of such a calamity occurring next session. Personally I am of opinion that the Government Bill, even without Sir L. Playfair's amendment, was seriously defective in that it attempted too much in one direction and too little in another. I agree with Dr. Farquharson's speech on the second reading, that the Bill would probably have injured, if not ruined, the corporations; and I do not think that in England, at any rate, there is any desire to see these bodies either ruined or seriously injured,

nor have I seen any evidence of such desire on the part of the profession in Scotland or Ireland. On the other hand, the Bill touched the radical defect of the Medical Council—i.e., its non-representative character—with such a tender hand that I doubt very much if for practical purposes there would have been a pin to choose between the old Council and the new. At a time when some two millions of uneducated agricultural labourers are about to get votes for the election of representatives in the body which governs the nation, it seems to me a little absurd that it should be offered as a great boon to twenty thousand members of a learned profession that they should have the right to elect less than one-fourth of the body which governs their own profession. Let us go in for a thoroughly representative Council first, and our difficulties in obtaining other necessary reforms will be very much diminished.

I am, Sir, yours truly,

Dulwich, August 2nd, 1884. H. NELSON HARDY.

DISINFECTANTS.

To the Editor of THE LANCET.

SIR,—In your Paris correspondent's letter of July 26th, various experiments by M. Pasteur to determine the efficacy of different disinfectants are recorded.

Some years ago, when I was medical officer of health, I conducted some similar experiments by exposing vaccinia lymph in small chambers to the influence of various disinfectants. The results of these experiments were embodied in my Government report. The disinfectants I used were sulphurous anhydride chlorine, euchlorine, carbolic acid, and sanitas. Owing to the passing of the Cruelty to Animals Act, I had to test the lymph on the babies brought for vaccination; the difficulty in obtaining the consent of the mothers prevented me from carrying the experiments to a satisfactory conclusion, but as far as they went they appeared to point to euchlorine as being by far the most powerful. There are at least two distinct classes of disinfectants: those that kill the microbes (germicides), as corrosive sublimate; and those that destroy or consume the germ by setting free nascent oxygen or ozone. Fresh air, containing as it does free ozone, acts in this way. As each molecule of euchlorine sets free four atoms of oxygen in the nascent condition, thus $Cl_2O_3 + XCl + H_2O = 2HCl + XCl + 4O$, it is probably the most powerful of its class. The free chlorine that it contains doubtless, also, contributes to its efficacy. Euchlorine is a mixture of free chlorine, or chlorine very loosely combined, and chlorous oxide, Cl_2O_3, and is prepared by pouring strong hydrochloric acid on potassium chlorate and applying a gentle heat. I usually placed a small basin containing the chlorate in a large one full of boiling water, and on pouring in the hydrochloric acid the euchlorine was freely given off. The practical experience of several years' use in all cases of fever fully bore out the theoretical experiments, that in euchlorine we have a cheap, simple, and effective disinfectant.

I am, Sir, yours truly,

T. HATFIELD WALKER, L.R.C.P.

Newcastle-on-Tyne, July, 1884.

NORTH LONDON CONSUMPTION HOSPITAL.

To the Editor of THE LANCET.

SIR,—My attention has been drawn to an annotation in THE LANCET of July 12th, headed as above. The writer insinuates that the abuses of the last fifteen years are due to a committee over which I have had control.

The facts are: (1) That neither I nor the medical staff have had *any* voice in the management since 1868; (2) that all present attempts at reform owe their origin entirely to the exertions of the medical staff; and (3) that many years ago objection was made to the committee by the physicians *against* the printed addresses of the staff *without effect*. As delegate of the medical staff to the committee of management, I assert without reserve that the printing of the out-patients' letters *without* their addresses will be most satisfactory to every member of the medical staff.

I am, Sir, yours obediently,

GODWIN TIMMS, M.D. Lond.

THE Library of the Obstetrical Society will be closed from August 18th to September 18th

BIRMINGHAM.

(From our own Correspondent.)

QUEEN'S COLLEGE.

THE appointment of a Professor of Anatomy who will give his undivided attention to the duties has given universal satisfaction among the friends of the school. Even those who were at first unwilling to sink vested interests see now that much good is likely to accrue to the College by this arrangement. With three demonstrators, all highly qualified and trained in teaching, the anatomical department ought to be second to none, and able to compete with others where the advantage was formerly theirs.

BIRMINGHAM ASSIZES.

After many years' agitation, much perseverance and considerable energy, the town now enjoys the privilege of a distinct court of assize. The first opening was made on the 4th inst., an awkward day for business purposes, being Bank Holiday. Owing to the absence of a separate court, the assizes were held in the Council-house, which has been fitted up and adapted for the occasion. It cannot be said to be a success from a health point of view, for the ventilation is necessarily defective and the transmission of sound bad, and very trying for those whose attention must be fixed for a length of time on important issues. It is proposed to build new courts, a site having already been marked out; but in these times of trade depression the authorities look askance at any large expenditure of money, or, if wishing to indulge, are reminded of a vigilant body of ratepayers, who view with suspicion any movements in this direction for the present. Still, the new courts must ultimately come as a matter of convenience; and now that Birmingham has the advantage of this important concession, it is but a sequence that adequate provision should be made for the proper transaction of the duties pertaining thereto.

THE NEW EYE HOSPITAL.

The new premises of this charity were opened on the 24th ult. by Lady Leigh, in the presence of a large number of friends and visitors. The large and spacious building was tastefully decorated, and much interest was exhibited in the proceedings. The new hospital has accommodation for 70 in-patients, and room for 200 or 300 out-patients daily, the two departments being kept entirely distinct. The cost of the whole will be about £20,000, of which £5000 was given by one donor. The Eye Hospital has ever stood high in public esteem, and has drawn its patients from a very wide area throughout the Midland Counties. It is hoped, therefore, that the deficiency announced of £4000 will be supplied without resorting to more than earnest appeals to the charitable public, who in this town have always most willingly supported the institutions for the relief of suffering and disease.

UNPARDONABLE STUPIDITY.

The Borough Coroner held an inquest a few days ago on the body of a child, who had met with its death from gross carelessness, in a manner almost incredible in this enlightened age. A woman having attended the Queen's Hospital was supplied with medicine for her ailment. The child of a neighbour in the same court was taken ill, and in the wisdom of the friends it was thought that the mixture prescribed for the woman would do it good; accordingly the unfortunate child was dosed with this, was seized with convulsions and died. The mixture turned out to be iron and strychnine. A more roundabout method of treatment could hardly be conceived, and the result showed how ignorant amateurs base their conclusions upon a very slender and treacherous foundation.

MANCHESTER.

(From our own Correspondent.)

HOSPITAL AMBULANCE.

A FEW months since a resolution was adopted by the Board of the Royal Infirmary to the effect that a horse ambulance should be acquired and worked on the plan adopted in some of the large towns in America and also in

Liverpool, whereby serious cases of accident or sudden illness are sent for and removed by the hospital authorities, and the proposed experiment here had been looked forward to with some little interest. At the last monthly meeting of the Board, however, this resolution, on the motion of Sir Joseph Heron, the Town Clerk, was rescinded, and the ambulance will not be obtained, at all events for the present. The chief argument used was that Manchester already is provided with ample provision of a similar character in connexion with the police force, there being no less than seventeen admirably constructed hand ambulances on wheels, kept at the various stations and available at any time, day or night; and on the occasion of the recent railway disaster they rendered most effectual assistance in removing the sufferers from the station to the infirmary.

THE ROYAL INFIRMARY.

The annual meeting of the trustees of the infirmary was held on the 31st ult., when the annual report and statement of accounts were adopted. The latter show that the total income of the infirmary, with its allied institutions the fever hospital, the convalescent hospital, and the lunatic asylum, amounted to £62,027 for the past year. The income exceeded the expenditure at the infirmary, the asylum, and the fever hospital, but at the convalescent hospital the income fell below the expenditure by £1740, so that this institution still continues to be a heavy burden on the infirmary funds. The fever hospital has been unusually full during the past twelve months, due to a somewhat prolonged epidemic of scarlatina, and its resources have been somewhat taxed to provide accommodation for all the cases, and it is in contemplation shortly to extend the buildings there. Some meetings have been recently held to consider the desirability of relieving the infirmary of the responsibility of providing accommodation for the infectious diseases of the city, and of handing over the fever hospital to the health authorities of the corporation, but at the meeting alluded to above it was resolved, on the motion of Dr. Renaud, seconded by Mr. Schuster, "That in the opinion of this meeting it is desirable that the future exclusive control of Monsall Fever Hospital should be retained by the infirmary board, provided that a *modus vivendi* can be arranged with the Corporation of Manchester and the health authorities of the surrounding districts."

At the Salford Fever Hospital the accommodation has also been found to be insufficient, and application is about to be made to the Local Government Board for permission to spend £1000 in extending the Wilton Hospital.

NATIONAL VETERINARY ASSOCIATION.

During last week the second general meeting of the National Veterinary Association was held at Owens College, under the presidency of Mr. Thomas Greaves, F.R.C.V.S. The meeting was well attended by veterinary surgeons from various parts of the country, amongst them being Professor Walley, Dr. Fleming, Professor Williams of Edinburgh, J. McCall of Glasgow, and others. The President, in his opening address, dwelt upon the important part which he hoped the Association was in the future destined to play in raising the tone of the veterinary profession. It was the outcome of the various Veterinary Associations which had sprung up in different places during the past few years, and it was intended to follow in great measure the lines of the British Medical Association. Various papers were read, followed by discussion, many of the subjects having considerable interest for the medical profession, such as "Public Health as affected by Food-supply obtained from Animals," by Dr. McCall. The members dined together at the Grand Hotel, and several members of the medical profession were present as visitors.

At the last meeting of the Board of Guardians the subject of provision for infectious diseases was discussed, and it was suggested that buildings be erected near the wrkhouse sufficient to accommodate at least thirty patients.

THE body of the gentleman who recently died from heart disease on the West Pier, at Brighton, after chasing the man who had stolen his watch, has been identified as that of Mr. Alexander Cunningham Tweedie, aged sixty-two, a surgeon, of Caversham-road, Kentish-town, London. At the inquest held before the Deputy Borough Coroner, a verdict was returned in accordance with the medical testimony.

MEDICAL NOTES IN PARLIAMENT.

IN the House of Lords, on Tuesday, the Criminals Lunatic Bill was read a second time, and the Cholera Hospitals (Ireland) Bill was read a third time and passed. The report of amendments on the Canal Boats Act (1877) Amendments Bill was brought up and agreed to.

State of the Thames.

Lord Forbes called attention to the condition of the Thames, and recommended that the Aylesbury system should be applied to London sewage. Lord Dalhousie, in reply, observed that the Local Government Board had been calling the attention of the Metropolitan Board to the foul state of the river, and that owing to expensive deodorisation a slight improvement had been effected.

In the House of Commons, on Thursday, Sir J. M'Garel Hogg stated to Mr. A. M'Arthur that several plans for the disposal of the sewage had been considered by the Metropolitan Board, but none had been judged satisfactory.

School Pressure.

On Friday, Mr. Mundella assured Mr. Talbot that the Education Department was satisfied that the new code and the instructions to the inspectors would do all that could be done by the department to prevent over-pressure. The London School Board had put all their pupil teachers on half time, and the provincial School Boards were doing their best. He saw no present necessity for an inquiry into the subject.

Ramleh Barracks.

Lord Hartington, in reply to Mr. Ross, stated that a large amount of sanitary work had been carried out in Ramleh Barracks, and although the sick-rate was high (185 out of 1303), the principal medical officer did not attribute that to the state of the barracks.

The Patent Medicines Stamp Act.

Mr. Childers, in replying to Mr. T. P. O'Connor, said of course the patent medicines stamp was not a Government guarantee of the safety and purity of the medicine; but he was disposed to think that the French practice would, perhaps, be followed with advantage. He had no information that a large number of deaths occurred annually from poisonous patent medicines, nor that the Stamp Act had been condemned by the authoritative organs of the medical profession. He could hold out no hope at present of the repeal of the tax, which brought in £160,000 a year.

Royal Commissions.

Mr. Chamberlain stated that the Royal Commission on Merchant Shipping would not extend its inquiry to the sanitary provision of emigrants. Sir C. Dilke stated that the Royal Commission on Dwellings of the Poor had finished its inquiry as to the condition of rural parts of England and Wales.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON. — The following gentlemen were admitted Members of the College on July 31st:—

Pitt, George Newton, M.D.Camb., St. Thomas's-street.
Sieley, Richard, M.B.Lond., Park-row.
Younger, Edward George, M.D.Brux., Hanwell.

On the same day the following candidates were admitted Licentiates of the College:—

Airth, George Leslie, M.D.Toronto, St. Peter-street.
Banham, William Wilfred, Worsborough Dale, Barnsley.
Barritt, Gilbert Lacy, Waterside, Todmorden.
Bateman, Frank Augustus Newton, Pall-mall.
Beardmore, George Russell, Upper-street.
Beaumont, Edgar, Gipsy-hill.
Bell, James Francis, Vicar's-road.
Biden, Charles Walter, St Mary's-road.
Bowhay, Albert, Gunnislake, Tavistock.
Brogden, Richard William, The Grove, Clapham-road.
Bronstorph, Ernest Ebenezer, M.D.Montreal, Philpot-street.
Brown, Wm. McEuery, M.D.Toronto, St. Peter-street.
Castor, Richard Henderson, Ainger-road.
Chambers, Herbert William, Lowestoft.
Collins, Arthur Ward, Rainhill, Prescot.
Collins, George William, Adelaide-road.
Collyer, James Ralph, Enfield.
Craddock, Sidney Ernest, Milman-street.

Davies, John Charles, Rhos, Ruabon.
De Montbrun, Pedro Louis, Porteus.
Evans, Cadwallader Edwards, Westbury-on-Trym.
Forster, Thomas Frederick, Guilford-street.
Fotherby, H. Arthur, St. George's Infirmary, Fulham-road.
Fowler, Alfred Henderson, Guy's Hospital.
Gostling, Thomas Preston, University College Hospital.
Greene, Edward Campbell, Rowan-road.
Hale, Charles Henry, Elgin-road.
Harvey, James, Larkall-lane.
Hillaby, Arthur, Manor-road.
Hitchins, Thomas Johns, Broadfield, Crawley.
Humphreys, Francis Rowland, Guy's Hospital.
Hunt, Edwin Guy, Guilford-street.
Jones, Richard Nelson, Baron-court Chambers.
Keele, John Rushworth, Southampton.
Kent, Herbert Arthur, Salisbury.
Kolapurvala, Jamsetjee Framjee, Malpas-road.
Laicaca, Cawas, Whitehall-gardens.
Lichfield, James William, Talgarth-road.
Marriott, John, Percy-circus.
Mirza, Jafarkuli Faredunbeg, Richmond-road.
Molesworth, Robert Everard, Belmont-road.
Murray, Geo. Alfred Everitt, St. Bartholomew's Hospital.
Openshaw, Thomas Horrocks, Poplar Hospital.
Oram, Percy Sprague, Amhurst-road.
Parrott, Thomas Godfrey, Aylesbury.
Price, John Dudley, Waddam's Pool, Dudley.
Reilly, Charles Cooper, Denbigh-street.
Roberts, James Reid, Vernon Chambers.
Roberts, Owen William, Cambridge-gardens.
Salvage, John Valentine, Lancaster-road.
Sharp, Charles John, Normanby-place, Liverpool.
Shaw, Harry Charles Costello, Kingston-on-Thames.
Smith, Edward Arnold Cloete, Shooters-hill.
Smith, Howard Lyon, Tollington-park.
Southcombe, Arthur Geo., St. Bartholomew's Hospital.
Stevenson, John, Tachbrook-street.
Stewart, Andrew, M.D. Montreal, Great Coram-street.
Thurston, Hugh Champneys, Nicholas-street.
Trevan, Fredk. Adolphus, Melville Hospital, Chatham.
Trevor, Robert, Halsey-street.
Watkins, Arthur Muriel, Guilford-street.
West, John Arthur, Bickley Park.
Williams, Ezra Herbert, M.D. Toronto, St. Peter's-road.
Wilson, Arthur Henry, Abercromby-square, Liverpool.

COLLEGE EXAMINERS.—The following gentlemen have been appointed Examiners for the ensuing year:—Chemistry and Chemical Physics: Chas. Rumley Alder Wright, D.Sc., Chas. Wm. Heaton, F.I.C., Thomas Stevenson, M.D., Albert James Bernays, Ph.D. Materia Medica, Medical Botany, and Pharmacy: Evan Buchanan Baxter, M.D., Frederick Thomas Roberts, M.D., Thomas Lauder Brunton, M.D., John Mitchell Bruce, M.D. Physiology: William Henry Allchin, M.B., David Ferrier, M.D., Herbert Watney, M.D., John Harley, M.D. Osteology and Anatomy: William Anderson, F.R.C.S., L.R.C.P., Robert E. Carrington, M.D., James Anderson, M.D., Henry Morris, F.R.C.S., L.R.C.P. Medical Anatomy and Principles and Practice of Medicine: Sydney Ringer, M.D., William Howship Dickinson, M.D., William H. Broadbent, M.D., William Selby Church, M.D. Midwifery and Diseases Peculiar to Women: William Smoult Playfair, M.D., John Williams, M.D., John Baptiste Potter, M.D., James Watt Black, M.D. Surgical Anatomy and Principles and Practice of Surgery: Sydney Jones, F.R.C.S., John Couper, F.R.C.S., Alfred Willett, F.R.C.S., Thomas Bryant, F.R.C.S.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen, having passed the required examination for the diploma, were admitted Members of the College at a meeting of the Court of Examiners on the 31st ult.:—

Baillie, Robert Alexander, Blackheath.
Blight, William Lyne, Sladesbridge.
Chapman, Harry Cecil, St. Mary's-terrace.
Drew, Arthur John, Gloucester-place.
France, Edward, Sheffield.
Heath, Charles Joseph, Cromwell-road.
Hiddingh, William Henry, Balham.
Maher, Charles H., L.K.Q.C.P.I., Sydney, New South Wales.
Percival, Frank, Leinster-square.
Pinches, William Hooper, L.R.C.P. Edin., Fulham.
Scott, Alfred Langston, L.S.A., Dunmow, Essex.
Smith, J. A. Phin, Granville-square.
Stewart, Arthur Hastings, Colville-terrace.
Tomlins, William Henry, L.S.A., Rutland-street.
Tratman, Frank, Bristol.
Wilkin, Griffith Charles, Hyde-park-street.

Admitted Members of the College on the 1st inst.:—

Arkle, Charles Joseph, L.S.A., West Derby, Liverpool.
Caleb, Clement Cornelius, M.B. Durham, Allahabad.
David, Evan Thomas, L.S.A., Pontypridd.
Gilks, Norton Gilbert, L.S.A., Leominster.
Hill, Rowland, L.S.A., Bescaston.
Kidd, Leonard Joseph, Cambridge-street.
Pring, Frederick Arthur, L.S.A., Exeter.
Wright, William Henry, L.K.Q.C.P.I., Liverpool.

Admitted Members of the College on the 4th inst.:—

Appleton, Harry, L.S.A., Granville-square.
Haw, Walter Herbert, L.S.A., Cape of Good Hope.
Livermore, William L., L.S.A., Finsbury-park.
Marriott, John, L.R.C.P. Lond., Leicester.
Penny, Edmund John, L.S.A., Dorchester.
Sherrington, Charles Scott, L.R.C.P. Lond., Ipswich.
Squire, Walter Perfect, Torquay.

Admitted Members of the College on the 5th inst.:—

Bolton, George Augustus, Surbiton.
Gray, J. P. William, L.S.A., Barnsbury-park.
Guilding, Lansdown Murray, L.S.A., Reading.
Marshall, W. L. Wright, L.S.A., Brixton-rise.
Phillips, Ernest Wilmer, L.S.A., Brighton.
Roberts, J. S. Hughes, L.S.A., Swansea.
Wey, Alfred Cox, L.S.A., Plymouth.
Windley, William, L.S.A., Nottingham.

Admitted Members of the College on the 6th inst.:—

Beddoes, Thomas Pugh, Church Stretton.
Cropley, Henry, L.S.A., Swaton, Lincolnshire.
Foot, Ernest George, L.S.A., Bigbury, Devon.
Mackenzie, H. W. Gavin, M.B. Cantab., St. Stephen's-terrace.
Weaver, William George, L.S.A., Hereford.

At the examinations for the diploma of Membership of the College, which have just been brought to a close, St. Bartholomew's sent 53 candidates; University College, 39; Guy's, 27; St. George's, 23; King's College, 19; St. Thomas's, 15; London, 15; Charing-cross, 13; Middlesex, 13; St. Mary's, 12; and Westminster, 11. Of the Provincial schools, Manchester took the lead with 24; Cambridge, 13; Leeds, 11; Birmingham, 8; Bristol, 8; Liverpool, 7; Newcastle, 5; and Sheffield, 3. Edinburgh and Glasgow sent respectively 21 and 4; Dublin, 3; Madras 2; Calcutta 1; Bombay, 1; McGill College, Montreal, 3; Toronto, 2; and Amsterdam, 1.

COLLEGIATE HONOUR.—On Tuesday last the honorary gold medal of the Royal College of Surgeons was unanimously awarded to Sir Erasmus Wilson, Bart., a Fellow and past President of the College, in recognition of his liberal contributions to the Museum, in the endowment of the Pathological Curatorship, and in the foundation of the Professorship with which his name is associated. This medal, which was founded in 1800, has only been awarded on six previous occasions; and, curiously enough, the first to receive it was another of the same name, Professor James Wilson, in 1822. Mr. James Parkinson obtained it in 1825; Mr. Joseph Swan, a former member of the Council, in 1834; Dr. George Bennett, of Sydney, in 1869; Dr. H. L. Crowther; and, in 1876, Dr. F. B. Peacock.

REMOVAL FROM THE MEMBERSHIP.—At a meeting of the Council on the 5th inst. the following resolution was carried unanimously: "That in the opinion of the Council the advertisements and publications issued by Mr. George Washington Evans are, in the terms of clause 2, section xvii. of the Bye-laws, 'prejudicial to the interest,' and 'derogatory to the honour of the College,' and 'disgraceful to the profession of surgery,' and that, in consequence of the issue thereof by him, he be removed from being a Member of the College."

UNIVERSITY OF LONDON.—The following candidates have passed the recent Preliminary Scientific (M.B.) Examinations:—

FIRST DIVISION.—James Cameron (Ph.), Univ. Edin.; John David Cruickshank (Ph.), Guy's Hosp. and private tuition; J. Lacy Firth,* W. J. Hancock,* and J. Sinclair McGowan,* Owens Coll.; E. Hanbury Hankin, Frank Spiller Locke, Bedford Pierce, E. Noel Reichart, and John Wilkie,* St. Barthol. Hosp.; Alfred Parkin, Yorkshire Coll.; Ransom Pickard and C. Hubert Roberts, Univ. Coll.

SECOND DIVISION.—C. Francis Abbott,* H. Carpenter Bristowe, W. Macdonald Heisham, F. Maurice House, E. Augustus Roberts, and Reginald Vaughan Solly, St. Thomas's Hosp.; Frederic W. Abbott, Charing-cross Hosp. and private study; J. Hill Abram, Univ. Coll. and Roy. Infirm. School of Medicine, Liverpool; Magnus Adler, private study; Theodore Baker,* F. Richardson Blaxall, A. Wilson Boning, H. G. Graham Cook, C. Seymour Dowdell, H. E. Durham, H. Muir Evans, W. Soltau Fenwick, Hilarion M. Fernando,* R. Foster Gill, Kenneth McLaren, Chandi Charan Sen, Henry Sharman, W. W. Hunt Tate, E. Olive Turner, G. B. Mower White, W. G. Willoughby, Ernest Wills, and Charles Wilson, Univ. Coll.; H. Stanley Balliance* and H. A. Lepthairia Pope, King's Coll.; R. Attwood Beaver, School of Medicine and Univ. Coll., Liverpool; A. J. Bennett, St. Barthol. Hosp. and private study; Annette Matilda Benson (Z.), Newnham Coll., Camb., and private study and tuition; A. E. Berry, F. H. Warburton Cottam, G. E. Fryer (Ph.), T. Ashton Goodfellow, Henry Langdale, Robert Ellis Lord,* Richard H. Read, and Edward Herbert Robinson (Ph.), Owens College; William Jenner Best (Ph.), Cavendish College, Cambridge, and private tuition; Robert Bird, Thomas J. Dyall, Alfred M. Gledden (Ph.), Thomas E. Spencer, and Herbert Williams, St. Barthol. Hosp.; F. Frost Blackman,* private study; Bokenham, Thomas Jessop, St. Barthol. Hosp. and private study; George Goss Borrett,* Harry Corner, W. Thomason Grenfell, A. D. Percival Hodges, Charles R. Killick,* and J. K. Warry, London Hospital; Arthur Boulton, Epsom Coll. and private tuition; Richard Oxley Bowman,* Old Trafford School and Owens Coll.; William Branson,* Firth Coll. and School of Medicine, Sheffield, and private study; James Buchanan and William J. Cameron, Queen's College, Belfast; H. Ambrose Burrowes, Univ. College, Liverpool; C. Mackinnon Clark, St. George's Hospital; J. Hazelwood Clayton, Arthur Gerard Irvine, G. Saint Johnston, Alfred Kingsland, and Harold Mason, Mason Coll., Birmingham; Francis H. Cooke (Ph.), University Coll. and private study; George H. Cocke,* Owens College and private

study; Henry Scarborough Cooper,* Westminster Hospital; T. P. Cowen, private study; Abel Davies, Univ. Colls. Aberystwith and Cardiff; Cyril S. Davis, A. Downing Fripp, H. Vigers Hickman, A. Byrn Hudson, G. Lajus Kemp, W. Job Maillard,* Charles J. Martin,* Albert E. Norbury, and C. Frederic Routh, Guy's Hospital; Bertrand E. Dawson, Univ. Coll. and private tuition; P. Rashleigh Dodwell (Z.), Univ. Coll. and private study; Percy J. Duncan, Ronald T. Gravely, Henry E. Knight, and Sidney B. Smith, Epsom Coll.; Robert H. Elliot, private tuition; Harry W. Elphick,* Epsom and Univ. Colls.; George Sinclair Farquharson, Univ. Coll. and London Hosp.; Fredk. A. Field,* private study; Ernest E. Francis, St. Barthol. Hosp. and private tuition; Gerald Dudley Freer (Ph.), Queen's and Mason Colls., Birmingham; Arthur E. Giles,* Owens College and private study; William Gordon,* Trinity Coll., Cambridge; J. Temperley Grey, Samuel Wolferstan Morgan, and William Taylor (Z.), Univ. Coll., Bristol; John Arthur Hayward, Univ. Coll. and private study; Thomas Johnson,* Normal Sch. of Sci., S. Kensington, and private study; E. Lloyd Jones,* Unattached Camb. Univ.; Harold A. Kidd, St. Mary's Hosp.; Charles R. Lane, Yorkshire Coll., Leeds; Hans H. Mack, London Hosp. and private study; R. Devereux Mothersole, Guy's Hospital and private study; Berkeley G. A. Moynihan, Yorkshire Coll. and Leeds Sch. of Medicine; C. Octavius Parsons, St. Thomas's Hosp. and private study; T. Wilkence Piper,* St. John's Coll., Battersea, and Univ. Coll.; Cecil Price-Jones, Univ. Coll. and Guy's Hosp.; G. H. Drummond Robinson, private study and tuition; Charles E. Smith, private study and tuition; Daniel Benham Spence, London Hosp. and private study and tuition; Christopher P. Spink, Leeds Med. Sch. and Yorkshire Coll.; Theodore M. Stiles, Bristol Med. Sch. and Univ. Coll.; Sidney S. Swift, Liverpool Roy. Infirm. Sch. of Med.; Herbert J. Thomas, Bristol Med. Sch.; Robert H. Tompsett, Crewkerne Sch. and Univ. Coll.; Francis W. Tunnicliffe, St. Barthol. Hosp. and private tuition; Frederic J. Webb,* Roy. Coll. of Sci., Dublin, and private tuition and study; Joseph Wright, Yorkshire, Coll., Leeds.

CHEMISTRY ONLY.—Launcelot W. Andrews, St. Barthol. Hosp.; John Edwin Wood, B.A., Yorkshire Coll., Leeds.

EXPERIMENTAL PHYSICS ONLY.—George Dines Parker, St. Barthol. Hosp.; Edward Posnett, Yorkshire Coll., Leeds, and private tuition; Ernest Ward, Bristol Med. Sch. and private tuition.

BOTANY ONLY.—Henry E. Leigh Canney, Univ. Coll.; David T. Jones, Cyrus Legg, and David Foulkes Roberts, Guy's Hosp.

ZOOLOGY ONLY.—James J. Buist, St. Barthol. Hosp.; E. Delacourt Kell, London International and Univ. Colls.; Thomas Wilson Smith, Guy's Hosp.; Fredk. W. Stokes, Queen's and Mason's Colleges, Birmingham.

* Also passed in the Mathematics of the Intermediate Examination in Science, and have thus become admissible to the B.Sc. Examination.
(Ph.) Postponed their Examination in Physics.
(Z.) Postponed their Examination in Zoology.

UNIVERSITY OF GLASGOW.—The following candidates have obtained the under-mentioned degrees during the summer session, 1884:—

DOCTOR OF MEDICINE.

Allan, Robert, M.B., Scotland.
Boyd, J. Dunlop, M.B., Austral.
Donald, David, M.B., Scotland.
Hargreaves, Mark K., M.B., Eng.
Goff, John, M.B., Scotland.
Lewis, J. Robertson, M.B., Scot.
Middleton, G. S., M.A., M.D., Scot.
Miller, Robert, M.B., Scotland.
Morrison, Wm., M.B., "
Macphee, Angus, M.B., "
Smith, P. C., M.A., M.B., "
Steven, J. L., M.B., "
Thomson, James, M.B., "
Wills, James, M.B., "

BACHELOR OF MEDICINE AND MASTER IN SURGERY.

Auld, Alexander G., Scotland.
Bamber, Harry, "
Beveridge, John, "
‡Blakely, William T., "
Brown, William, "
Brown, William, "
‡Brown, William M., "
Brownlee, John Innes, S. Africa.
Clark, George, Scotland.
Cowie, James, "
Crawford, James, "
Cullen, William, "
Cumming, J. B., South Africa.
Cunningham, John, Scotland.
Dobie, Henry E. N., China.
Ecklin, William, Scotland.
Findlay, James, "
‡Finlay, David, "
Frew, Alexander, "
‡Fulton, Andrew B., "
†Greener, Michael H., England.
*Hawthorne, C. O., "
Hinshelwood, J., M.A., Scotland.
Jack, Alexander, "
Kelly, Hugh, "
Kendall, Francis E., England.
Keogh, Arthur G., Australia.
Kerr, John A., Scotland.
Killoch, Matthew, "
King, Charles G., "
Kirkpatrick, A., "
Livingstone, R. "
Marquis, Duncan, "
Marshall, W. G., M.A., Scotland.
Mason, Henry, England.
Mathie-Morton, J. M., Scotland.
‡Miller, Robert G., "
Montgomery, A. N., "
‡Murdoch, Andrew, "
Murdoch, J. W. A., "
Macarthur, Benj. W., "
Macartney, D., M.A., Scotland.
M'Cracken, William, "
M'Creadie, William, "
‡M'Culloch, T. C., "
Macdonald, Roderick, "
MacDougall, Alex., "
MacGilvray, Duncan, "
Mackenzie, Ernest, England.
Mackinnon, C., M.A., Scotland.
Mackintosh, D. J., "
Mackphail, Digby M., Jamaica.
Macrae, Alex. M., Scotland.
Paterson, Alexander B., India.
‡Peacock, Alexander, Scotland.
Protsell, William G., "
Ralley, James, "
Rankin, William, Ireland.
Reddie, John G., Scotland.
Ritchie, John, England.
Robertson, Alexander, Scotland.
Russell, Frank, "
Rutherford, R., M.A., "
Scott, Gavin S., "
‡Scott, Robert, Australia.
Semple, Miller, Scotland.
Service, R. M., "
Sharman, Mark, England.
Shaw, James, Scotland.
Sinclair, John, "
Smith, W. M., "
Somerville, W. F., M.A., Scotld.
Spence, Walter W., "
Taylor, Francis, "
Taylor, William C., Australia.
Thornley, Joseph, England.
Todd, George B., Scotland.
Watt, Allan, "
White, John, "
†Wilson, George, "
‡Wilson, J., M.A., B.Sc., Scotland.

* Honours; gained also the Brunton Memorial Prize of £10, awarded to the most distinguished Medical Graduate of the year (1884).
† High Commendation. ‡ Commendation.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates passed the Final Examination at the July sittings of the Examiners, and were admitted Licentiates of the Faculty:—

Barnett, F. S., Stoke Newington.
Barry, D. M., West Drayton.
Boothman, Alex. C., Glasgow.
Fairley, Saml. B., Birmingham.
Goodwin, A. G., Glasgow.
Jameson, David, Newtonards.
Margesson, John G., Ceylon.
Taylor, Alfred, Bolton.
Wilkinson, Ernest W. C., Glasgow.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates passed the recent Final Examination for the double qualification, and were admitted Licentiates of the Faculty and of the College:—

Anderson, John G., Glasgow.
Drysdale, William, "
Forrest, J. S., "
Hallock, S., Edinburgh.
Johnson, O., "
Jones, J., Glasgow.
Jones, W., "
Morgan, Rees, Glasgow.
Necon, J. T., "
Owen, John H. "

BRITISH MEDICAL SERVICE.—The following is a list of Surgeons on Probation in the Medical Department of the British Army who were successful at both the recent London and Netley examinations. The marks shown are those which were gained at the London examination; the order of position of these gentlemen is not affected by the marks gained at the Netley examination:—

	Marks.		Marks.
J. R. Barefoot ..	2440	J. I. P. Doyle ..	2145
R. H. Clement ..	2429	N. Manders	2130
G. D. Hunter ..	2335	L. R. Colledge ..	2110
W. C. Beever ..	2300	S. F. Freyer	2075
L. E. Anderson ..	2275	†C. Birt	2070
*G. B. Russell ..	2250	R. S. F. Henderson	2060
A. E. C. Spence ..	2220	H. Mitchell	2000
J. R. Mullins ..	2200	S. Butterworth ..	1990
R. J. McCormack ..	2180	C. J. Holmes	1980
H. N. Thompson ..	2160	I. R. Lane	1930

* Gained the Montefiore second prize.
† Gained the Parkes' Memorial Bronze Medal.

INDIAN MEDICAL SERVICE.—The following is a list of Surgeons on Probation in this service who were successful at both the London and Netley examinations. The final positions of these gentlemen are determined by the marks gained in London added to those gained at Netley, and the combined numbers are accordingly shown below:—

	Marks.		Marks
*J. H. T. Walsh ..	5517	G. H. Fisk	4423
†H. Hendley	4879	W. G. P. Alpin ..	4146
H. E. Banatvala ..	4606		

* Gained the Herbert Prize of £20, with the Montefiore Medal and Prize of 20 guineas, and the Martin Memorial Gold Medal.
† Gained the Director-General's Prize in Pathology.

APOTHECARIES' HALL.—The following gentlemen passed the examination in the Science and Practice of Medicine, and received certificates to practise, on July 31st:—

Brookfield, Samuel, Dresden, Staffordshire.
Carrington, William Henry, St. Thomas's-street.
Fowler, Thomas Webb, Summer-lane, Birmingham.
Hall, Gilbert Capel, Bath-row, Birmingham.
Haw, Walter Herbert, Mecklenburgh-street.
Lane, Frank, Bedford-road, Tottenham.
Marshall, William Lawrence Wright, Brixton-rise.
Pinniger, Charles Lever, Bennett-park, Blackheath.
Wright, Frank Marsh, Bottesford, Nottingham.

The following gentleman also on the same day passed the Primary Professional Examination:—

Lavies, Harry Brandreth, King's College Hospital.

GUY'S HOSPITAL.—The Library of this Hospital will be closed on Monday, August 11th, and reopened on Monday, September 1st.

UNIVERSITY OF EDINBURGH.—In the Edinburgh University pass list, as published last week, the name "J. D. Davies," should have been D. Davies Jones.

MR. SAMUEL MORLEY, M.P., President of the London Temperance Hospital, has forwarded to the funds of that institution a donation of £500.

NEW MAGISTRATE.—Mr. T. H. Bartleet, F.R.C.S., has been placed on the Commission of the Peace, and qualified last Monday at the opening of the first Birmingham Assizes.

ON the 31st ult., at Chelmsford, one of "the Peculiar People" was found guilty of the manslaughter of his daughter by neglecting to call in medical aid in an illness from which she died, and sentenced to one month's imprisonment.

PRIZES FOR SURGICAL ESSAYS.—The Medico-Surgical Society of Bologna has offered two prizes of 500 lires each. The first prize is for the best essay on "The Surgical Treatment of Pulmonary Cavities"; the subject for the second prize is, "The Surgery of Diseases of the Stomach." The essays must be written in Italian, French, or Latin.

THE JAFFRAY HOSPITAL.—At a meeting of the Committee of the Birmingham General Hospital, held last week, a letter was read from Mr. Jaffray, offering to devote, for the purposes of the Jaffray Suburban Hospital, four acres of land, in addition to the site already given by him. The gift was accepted with thanks.

STATE OF THE THAMES.—On the 2nd inst. a committee of the Metropolitan Board of Works inspected the Thames at Woolwich, and were gratified to find that the measures of deodorisation of the metropolitan sewage recently adopted at the outfalls have proved successful. The water presented its normal appearance, and there were no offensive smells on the banks or on the stream.

SUICIDE OF A MEDICAL MAN.—The Liverpool papers announce the death, by the inhalation of chloroform, of Dr. G. J. Jones, at Adelaide. The deceased was found, on the morning of June 22nd, in bed with a piece of sponge which had contained chloroform pressed against his nostrils, and quite dead. Letters in the room showed that the cause of death was not accidental.

APOTHECARIES' HALL OF IRELAND.—The following have been elected office-bearers for the ensuing year:—Governor: Thomas Collins. Deputy Governor: Robert Montgomery. Court of Directors and Examiners: E. A. Bolland, John Evans, A. Harvey, Charles Holmes, Charles H. Leet, C. F. Moore, H. P. Nolan, R. G. O'Flaherty, E. J. O'Neill, Sir G. B. Owens, John Ryan, James Shaw, and George Wyse. Representative on the General Medical Council: T. Collins.

THE IRISH GRADUATES' ASSOCIATION.—The annual meeting of this Association was held on the 30th ult in the Queen's College, Belfast, presided over by Prof. William Stokes, of Dublin. A vote of thanks was passed to Dr. Yeo, late President; and Prof. Foster, of Birmingham, was unanimously selected as President for next year. Dr. Frazer, having resigned as hon. secretary, has been replaced by Dr. James Stewart, of Clifton. In the evening the annual dinner was held, which was well attended.

THE SANITARY INSTITUTE OF GREAT BRITAIN.—The autumn congress, 1884, will assemble at Dublin from September 30th to October 4th, 1884. The exhibition of sanitary apparatus and appliances in connexion with the congress will be held in the Royal Dublin Society's Buildings, Ball's-bridge, and will be open from September 30th to October 18th. In addition to the opening address by Sir R. Rawlinson, addresses will be given by Dr. T. W. Grimshaw, Mr. C. P. Cotton, Dr. Alfred Carpenter, and Dr. C. A. Cameron.

CITY PROVIDENT DISPENSARY.—The seventh annual meeting of the governors of this institution was held on the 31st ult. The attendances at the dispensary since July, 1877, has been over 19,300, while the home visits have amounted to close on 1500. In the surgical appliance branch, with regard to which no letter of recommendation is required, and no charge for surgical advice made, nearly 4800 instruments have been supplied since the institution of the Society. It appeared that at the commencement of last month the institution was about £300 in debt.

THE LATE MR. CÆSAR HAWKINS.—At the meeting of the weekly board of St. George's Hospital on July 23rd, 1884, the death of Mr. Cæsar Hawkins having been reported by the secretary, the following resolution was unanimously adopted:—"The weekly board of St. George's Hospital beg to express to Mrs. Cæsar Hawkins their sincere sympathy with her on the loss of her husband. The governors of St. George's Hospital, with feelings of gratitude for Mr. Cæsar Hawkins' eminent services, during a period of fifty-five years, as surgeon, teacher, and trustee, feel confident that the institution, in whose interests he worked for so many years, will continue to profit by an association with his character and name, whilst the public has the advantage of there being a large number of medical practitioners educated by him, and the medical profession by the example of his life, exhibited, as it was, in great scientific and intellectual qualifications, ever accompanied by a highly honourable and most gentleman-like bearing."

METROPOLITAN SEWAGE DISCHARGE.—The members of the Royal Commission on Metropolitan Sewage Discharge met on Thursday, and proceeded to inspect the river in a steamer placed at their disposal by the Thames Conservancy. They embarked at Gravesend at noon, and went below the Nore, returning to Woolwich in the evening, where they landed. The inspection lasted seven hours. There were present Lord Bramwell, Colonel C. B Ewart, R.E., Dr. F. de Chaumont, Mr. Thomas Stevenson, M.D., and Mr. James Abernethy, F.R.S.E.

BOLINGBROKE HOUSE PAY HOSPITAL.—At a special meeting of the managing committee of this hospital held on August 2nd, it was resolved to open its wards and private rooms for patients sent in under the care of any registered medical practitioner. Hitherto the patients have been attended by an honorary visiting staff, who have given for three years past a constant and efficient attendance at the hospital. At the meeting referred to these gentlemen very kindly facilitated the trial of the new experiment by placing their resignation in the hands of the managing committee.

EPSOM COLLEGE.—The annual distribution of prizes to the students of this college, commonly known as Founders' Day, took place on the 30th ult. After the distribution of prizes by Sir Joseph Fayrer, the head master announced that the governors of St. Mary's Hospital had decided to offer a scholarship of the value of 100 guineas for competition among the students of Epsom College, who must be sons of medical men. The hospital staff of St. Thomas's have also decided to offer a free scholarship to the pupils in the College who had passed either in the first class or in honours at the Preliminary Scientific M.D. at London University.

AMBULANCE INSPECTION.—The inspection of the Ambulance Company of the Tower Hamlets Rifle Brigade took place at the head-quarters, Shaftesbury-street, on August 2nd, the inspecting officer being Surgeon W. E. Webb, M.B., A.M.D. The company was commanded by Surgeon Platt, assisted by Acting Surgeons White and Waterhouse, and consisted of a sergeant instructor and sixteen rank and file; making four stretcher detachments. The various movements incidental to stretcher drill were creditably carried out, and at the termination of the parade, Surgeon Webb expressed his gratification at the manner in which the drill had been executed, and also of the efficiency and intelligence which the bearers had displayed in applying the different dressings.

Medical Appointments.

Intimations for this column must be sent DIRECT *to the Office of* THE LANCET *before 9 o'clock on Thursday Morning at the latest.*

ADAMS, GEORGE, M.R.C.S., L.S.A.Lond., has been reappointed Medical Officer of Health for the Bedminster Rural Sanitary District.

ASHE, WILLIAM CONYNGHAM, L.R.C.S.I., has been appointed Honorary Surgeon to the Newcastle Infirmary, New South Wales.

BARLING, HARRY GILBERT, M.B.Lond., F.R.C.S.Eng., has been appointed Demonstrator of Anatomy to Queen's Hospital, Birmingham.

BARON, BARCLAY J., M.B., C.M., has been appointed Physician to the Bristol General Hospital, vice G. F. Barder, M.D., F.R.C.P., resigned.

BIDEN, CHARLES W., M.R.C.S., L.R.C.P.Lond., has been appointed House-Surgeon to the Children's Hospital, Paddington-green, vice F. T. Hebb, M.R.C.S., resigned.

BIRCH, DE BURGH, M.D., F.R.S.E., has been appointed Professor of Physiology in the Yorkshire College, Leeds.

BLUMER, F. MILNES, B.A Dunelm, M.B., C.M.Ed., has been appointed Assistant House-Surgeon to the Cumberland Infirmary, Carlisle, vice H. H. Brown, M.B., C.M., resigned.

BURDER, GEORGE FORSTER, M.D.Aber., F.R.C.P.Lond., M.R.C.S., has been appointed Consulting-Physician to the Bristol General Hospital.

BURROWS, C. W. GRIMES, M.R.C.S., L.S.A.Lond., has been appointed Public Vaccinator for the Thornhill District of the Dewsbury Union.

DUTTON, WILLIAM HENRY, M.B., M.Ch.Ed., M.R.C.S., has been appointed Resident Medical Officer to the Castlemaine Hospital, Victoria.

EATON, JOSEPH, M.K.Q.C.P.I., L.R.C.S.I., has been appointed Medical Officer to the Rathcoole Dispensary, vice McEvoy, resigned.

EMINSON, LUTHER, L.F.P.S.Glasg., L.S.A.Lond., has been appointed Medical Officer for the Haxey District of the Gainsborough Union.

FOX, FORTESCUE, M.B.Lond., M.R.C.S. (late House-Physician at the London Hospital), has been appointed by the Duchess of Sutherland Resident Physician at the Strathpeffer Spa, Ross-shire, N.B.

FOX, GEORGE, L.R.C.P.Ed., M.R.C.S., has been appointed Resident Medical Officer to the Sydney Hospital.

HADDEN, WALTER BAUGH, M.D.Lond., M.R.C.P., has been appointed Physician to the Royal Hospital for Children and Women.

HASLAM, WILLIAM FREDERICK, F.R.C.S.Eng., L.S.A.Lond., has been appointed Demonstrator of Anatomy to Queen's College, Birmingham.

HOUGH, C. H., M.R.C.S., has been appointed Surgeon to the Derbyshire General Infirmary, vice J. Wright Baker, M.R.C.S., L.S.A.Lond., resigned.

HUDSON, T. J., M.D., L.R.C.P.Lond., has been appointed Medical Examiner to the Wesleyan and General Assurance Company, and to the Pearl Life Assurance Company, Leeds District.

HUMPHRY, LAURENCE, M.A., M.B.Camb., M.R.C.S., has been appointed Assistant-Physician to Addenbrooke's Hospital, Cambridge.

LEY, HENRY J., M.B. & C.M.Ed., M.R.C.S., has been appointed Resident Surgeon to the Birmingham General Dispensary.

LLOYD, G. JORDAN, M.B., M.S.Durh., F.R.C.S.Eng., has been appointed Demonstrator of Anatomy to the Queen's Hospital, Birmingham.

LOFTHOUSE, ARTHUR, M.R.C.S. & L.S.A.Lond., has been appointed Assistant Medical Officer to the County Lunatic Asylum, Sneenton, Nottingham.

MACALISTER, DONALD, M.A., M.B.Camb., M.R.C.P.Lond., has been appointed Physician to Addenbrooke's Hospital, Cambridge, vice Dr. Paget, resigned.

PITT, GEORGE NEWTON, M.A., M.D.Cantab., M.R.C.P., has been appointed Assistant-Physician to the East London Hospital for Children and Dispensary for Women, Shadwell, E., vice Francis Warner, M.D.Lond., F.R.C.P., resigned.

SOUTER, JOHN CLEMENT, M.D., Ch.M.Aber., has been appointed Government Medical Officer and Vaccinator for the District of Gulgong, New South Wales.

SPROULLE, H. MAGINNISS, M.B., B.Ch.Dub., has been appointed Public Vaccinator for the Mirfield District of the Dewsbury Union.

STRUGNELL, WALTER T., M.R.C.S., L.S.A.Lond., has been appointed Senior House-Surgeon to the Metropolitan Free Hospital, vice A. S. Nance, resigned.

Births, Marriages, and Deaths.

BIRTHS.

COUPLAND.—On the 2nd inst., at Weymouth-street, Portland-place, the wife of Sidney Coupland, M.D., F.R.C.P., of a son.

HUNT.—On the 4 h inst., at Palace-gardens-terrace, the wife of Bertram Hunt, M.B. Univ. Coll., Oxford, of a son.

SHAPTER.—On the 29th ult., at Barnfield-crescent, Exeter, the wife of Lewis Shapter, M.D., of a daughter.

YOUNG.—On the 30th ult., at Rose-bank, Merton-road, Bootle, the wife of T. F. Young, L.K.Q.C.P.I., M.R.C.S., of a son.

MARRIAGES.

ATKINSON—CHASE.—On the 30th ult., at Kenilworth, Miles Christopher Atkinson, M.D., son of the Rev. J. C. Atkinson, Vicar of Danby, Yorkshire, to Annie Hale Chase, youngest daughter of T. A. N. Chase, Esq., Madras Civil Service (retired), of Avon Lodge, Milverton, Warwickshire.

CANTLIE—BROWN.—On the 30th ult., at St. Martin's Church, Trafalgar-square, James Cantlie, M.A., M.B., F.R.C.S., of Charing-cross Hospital, to Mabel, eldest daughter of Robert Barclay Brown, of Barnes, Surrey.

NEALE—THOMSON.—On the 28th ult., at Edinburgh, J. Headley Neale, M.B., of London-road, Leicester, to Carrie, youngest daughter of the late Captain John Thomson, H.E.I.C.S., of Cromarty, N.B., and granddaughter of the late Rev. John Thomson, of Duddingston Manse, Midlothian.

PARDINGTON—DICK.—On the 2nd inst., at St. Mary's, Putney, by the Hon. and Rev. Robert Henley, George Lucas Pardington, M.D., eldest son of George Pardington, of The Moor, Hereford, to Elizabeth Jessie, eldest daughter of William Bruce Dick, of Carlton House, Putney-hill, S.W.

TWEEDY—POTTINGER.—On the 5th inst., at St. John's Church, Forest-hill, by the Rev. William Martin, George Alfred Tweedy, Bengal Civil Service, to Margaret, second daughter of Dr. R. Pottinger, R.N., Inspector-General of Hospitals and Fleets.

DEATHS.

GREGORY.—On the 1st inst., at Northernhay-place, Exeter, Bradley Gregory, Fleet Surgeon, R.N. (retired), aged 47.

JENKINS.—On the 31st ult., at Fawley, Hants, Robert Walker Jenkins, M.R.C.S. & L.S.A.Lond., Medical Officer of Health for the New Forest Rural District, formerly of Philpot-lane and Charlotte-street, Bedford-square, London.

MARSHALL.—On the 31st ult., at Tisbury-road, West Brighton, George Henry Marshall, M.D., F.R.C.S., late of Birmingham, and Kington, Herefordshire, in his 71st year.

RENTON.—On the 31st ult., at Rothesay-place, Edinburgh, Robert Renton, M.D., F.R.C.P.E., in his 91st year.

STEWART.—On the 4th inst., at Brunswick-terrace, Pendleton, Florence, the dearly loved wife of Alexander Stewart, M.D., and youngest daughter of the late John Shaw, M.R.C.S., of Atterchffe, Sheffield, aged 30.

TWEEDIE.—On the 4th inst., at Brighton, suddenly, Alexander Cunningham Tweedie, Surgeon (late of Galashiels, N.B.), in his 61st year.

N.B.—*A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.*

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET OFFICE, August 1st, 1884.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind	Dry Bulb.	Wet Bulb.	Solar Radia in Vacuo.	Max. Temp. Shade.	Min. Temp.	Rain fall.	Remarks at 8.30 A.M.
Aug. 1	30·10	N.E.	60	54	116	83	61	..	Hazy
,, 2	29·91	S.W.	73	66	122	85	64	..	Fine
,, 3	30·20	W.	64	57	113	72	55	..	Fine
,, 4	30·23	W.	63	57	113	76	52	..	Cloudy
,, 5	30·25	S.W.	63	58	116	79	54	..	Hazy
,, 6	30·14	S.E.	67	61	119	86	55	..	Hazy
,, 7	30·03	E.	70	64	115	82	59	..	Hazy

Notes, Short Comments, and Answers to Correspondents.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

All communications relating to the editorial business of the journal must be addressed "To the Editor."

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for publication or private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe, or recommend practitioners.

Local papers containing reports or news-paragraphs should be marked.

Letters relating to the publication, sale, and advertising departments of THE LANCET *to be addressed "To the Publisher."*

A HEALTH RESORT IN PRE-TUBERCULAR PHTHISIS.

KLOSTERS in the Grisons is strongly recommended by our Swiss contemporary *Gesundheit* in cases of phthisis, especially in the pre-tubercular stage. It lies 1200 metres (4000 Swiss feet) above the sea-level, and is already well known for its coolness in summer, and for its advantages as a station for the Alpine tourist. In the neighbourhood of the Silvretta glacier expands the mighty mountain landscape in which, protected against the north wind, and luxuriating in the most verdant vegetation, Klosters, with its pure, exhilarating, restorative air, offers peculiar attractions to the convalescent, and particularly to the incipient phthisical. As a "Vorstation" for Davos-am-platz and the Upper Engadine it is coming into peculiar favour.

THE subject of *Dr. Nixon's* paper is treated in our present number.

PNEUMONIC HEMIPLEGIA.

To the Editor of THE LANCET.

SIR,—In connexion with the case of Pneumonic Hemiplegia reported in THE LANCET of May 10th, you may, perhaps, think the following case worthy of notice in your journal:—An elderly lady had been under my care for some time, suffering from chronic bronchitis, accompanied with great debility. Suddenly pain seized her in the left side, and coincidentally the temperature rose about two degrees and a half. On examination pneumonia of a limited portion of the left lung was noticed. Three days after a mitral systolic murmur became clearly audible. Shortly after this she was taken with dizziness, fixed eyes, and all the symptoms of an apoplectic seizure. The mouth was drawn to the right, and there was paralysis of the left side of the body, with muffled and indistinct speech. At the time of the fit the apex murmur had become very loud. The patient, under the most careful nursing, speedily rallied from the stroke, the left leg quickly regained its motor power, the left arm remaining helpless somewhat longer. She was improving very satisfactorily, when suddenly her breathing became rapid, and the systolic apex murmur, which had become all but inaudible, again became very loud. From this time, which was about six weeks after the convalescence commenced, she slowly sank, although she rallied occasionally for a short time under the treatment. A few days before her death she suddenly became speechless, and lost all power over the tongue; there was no loss of sensation or motion in any other part of the body. The murmur at the apex continued very loud quite up to the last.

I am, Sir, yours faithfully,

Street, Somerset, Aug. 6th, 1884. ARTHUR CLARKE.

E. M.—The work could no doubt be obtained through Messrs. Sampson Low and Co., Fleet-street.

J. C. L.—It would serve no useful purpose to revive the controversy.

Enquirer.—The Government Education Code for 1883 and 1884 requires the minimum space allotted to each child to be eighty cubic feet. A room 25 ft. long, 16 ft. broad, and 10 ft. high would afford the minimum space for fifty children; but this amount we think insufficient. The minimum space to each child should be 110 cubic feet, with a considerable roof area above the calculated space when practicable; otherwise the atmosphere is apt to become stuffy. A room 30 ft. long, 20 ft. broad, and 15 ft. high to the ceiling or roof-plate would be a suitable size for fifty children, and the air of this should be constantly changed by efficient cross ventilation.

L.R.C.S.E. has not enclosed his card.

CHOLERA AND THE THAMES.

To the Editor of THE LANCET.

SIR,—The indifference of the public to a matter of such vital importance as the disposal and utilisation of the vast sewage of London has long been a source of profound astonishment to me. I am glad to see that at last the very serious question of reform in this particular is being discussed in the columns of the press. Rather more than a year ago, after considerable difficulty in obtaining any information on the subject, I wrote to the press calling attention to the state of the Thames, advocating a change, and recommending, as the best I could hear of M. Liernur's separate system, although I was aware of the many objections attached to it. Some little time later appeared a full report in a London paper of a visit paid by the Lord Mayor and Corporation of London to the Aylesbury works of the A B C Company. From the satisfactory nature of this report it seemed to me as if no further difficulty could exist with regard to the sewage question. The company undertakes to deal with the sewage at the outfall, and there, by a series of chemical processes, convert it into a dry, portable, inodorous guano form of manure, leaving an effluent so harmless that fish live comfortably in it, and so palatable that an adventurous alderman, tasting it at the visit referred to, pronounced it very little inferior to ordinary drinking water. Now, what possible objection can there be to disposing of the filth in the Thames by these clean, simple, and effectual processes? On the threshold of inquiry I am met by a portentous Cerberus—the question of expense. An extended sale of the native guano would be necessary to render the affair self-supporting, and I hear the British farmer, entrenched behind his usual barricade of prejudice, refuses to accept the new manufacture even as a gift, or to apply it to his fields! Remembering the active hostility of some, and the passive, incredulous disgust of others, which attended my late father's earliest use of Peruvian guano, it would be unwise to expect in the present comatose state of the agricultural interest a prosperous fate for any new, or suggestion of a new, remedy, especially at a time when a theory of leaving weeds in possession is cheerfully accepted on the assumption that they retain valuable nitrates which would be lost under a system of rapid cropping and deep cultivation. Happy Liebig! who did not live to hear the virtues of twitch, landbine, and thistles recounted and believed in. How long agriculture will remain in its present condition of semi-paralysis time alone must show; but I fear it will also show the creeping evil extending to every other branch of industry, and to the individual welfare of every member of the community. Upon the prosperous state of agriculture depends the entire prosperity of the nation. Since, however, agriculture can, or will, give no support to the A B C Company in removing from the midst of London its festering mass of inconceivable filth and peril, would not the Londoners allow a modest rate to be levied on them for the purpose? By paying heavy rates for new bridges, handsome streets, and improved systems of lighting, and at the same time neglecting to attend to the disposal of their sewage, the Londoners are in the position of householders who crowd their rooms with elegant and expensive furniture, while allowing the kitchen sink to overflow and poison the whole family. The expedient of throwing chloride of lime into the Thames to deodorise the daily accumulating fifteen to eighteen feet of sewage mud, for all the permanent effect it is likely to have, reminds one of Sidney Smith's story of the child who, when stroking the turtle and asked what she was doing it for, replied, "To please the turtle." "My dear," answered the humourist, "you might as well stroke the dome of St. Paul's to tickle the dean and chapter." I suppose there is nothing for it but to wait until some enormous sacrifice of life and property convinces the authorities that evaded duties and neglected responsibilities return with annihilating force upon those who, from indolence and short-sightedness, sit down passively or obstructively in the presence of evils demanding immediate redress.—I am, Sir, yours faithfully,

Earl's Colne, Essex, July 22nd, 1884. ISABELLA MECHI.

Dr. M. P. Gavin.—The book could no doubt be obtained through Mr. Nock, Bloomsbury-street, London, W.C.

PREVENTION OF "HARVEST BUMPS."

To the Editor of THE LANCET.

SIR,—Children during this hot weather seem terribly troubled with the attacks of the acarus autumnalis. "Harvest bumps" are omnipresent, and restful nights become impossible. Can you or any medical brother suggest any efficient means of preventing these attacks, which reduce so much the enjoyment by our little people of their healthful out-door summer life?—Yours faithfully,

CORNELIUS B. FOX, M.D., F.R.C.P.

Rosemount, Ilfracombe, Aug. 5th, 1884.

INHERITED SENTIMENT.

PROFESSOR SEELEY, in an article on "Goethe," published in the August number of the *Contemporary Review* offers the following interesting remarks on the subject of inherited sentiment:—"Some of those who watched Rossetti at his work thought they discovered that he did not regard his own imaginations seriously .... Similarly, Mr. James remarks of Hawthorne that it would be a great mistake to infer from the constant recurrence in his romances of the ideas of sin, retribution, and the stricken conscience, that Hawthorne himself was under the influence of such sombre ideas, the truth being that he was an easy-going, contented, and comfortable man. But Hawthorne's puritanic ancestors took these ideas seriously, and Rossetti's Italian ancestors in like manner furnished the beliefs which in their secondary form suggested Rossetti's pictures and poems. Of all artists, it is Scott who is richest in this kind of inherited sentiment. The shrewd, good-natured, somewhat worldly Scotch lawyer lives in a world of grandiose thoughts, opinions, sentiments, and convictions, out of which he composes at his ease a whole literature; and yet if you ask him what he thinks of these thoughts, opinions, sentiments, and convictions, he can only smile and evade the question. 'Superstition,' he says candidly, 'is very picturesque, and I make it at times stand me in good stead, but I never allow it to interfere with interest or convenience.' They were serious enough to his ancestors, these ideas of clannish devotion, of chivalry, of witchcraft and demonology; but to him they have come simply by inheritance. All he knows is that when he unlocks the ample chambers of his imagination he finds them there; that they work up into capital stories, if hardly fit for practical use; that, in short, they are the old furniture of the house in which Nature has placed him."

Mr. T. William Hughes.—We can see no valid reason for our correspondent not charging.

"GOING TO THE WASH."

To the Editor of THE LANCET.

SIR,—While, as a matter of course, you will agree that cleanliness is an important part of preventive medicine, you will no doubt as readily admit that the earlier in the week the humble housewife gets through her wash and the sooner her richer neighbour who can afford to "put out" everything sends the soiled linen of the household away, the better will it be for the health of the families concerned. Now, as travellers through the suburbs of London are aware, the laundrymen and women make Monday their grand collecting-day for soiled linen, and many of them send round properly appointed carts and vans. But there is another, and perhaps larger, class of laundry people who cannot, or do not, use conveyances for this purpose, but who send girls or women (mostly to fetch the bundles and baskets. Naturally enough, when long distances have to be traversed by these women, they avail themselves of the cheap rides to be had from point to point by 'bus, rail, or tram-car, and, no doubt with a view to the safe custody of their burdens, they take them inside the vehicle, whatever it is. The atmosphere of our crowded public conveyances is always sufficiently offensive without further contamination by the odours of foul linen, which in warm, wet, and muggy weather are very perceptible. I have on one or two occasions "made myself so disagreeable" as to protest against the conveyance of bundles of dirty linen in omnibuses; and perhaps, if you will again ventilate the subject (for I believe you have done so on previous occasions), it will stimulate others to take exception to the practice. The London General Omnibus Company and the tramway companies should give strict orders to their servants against the practice, which I am sure you will condemn most strongly. To say nothing of the offensive smell of the linen cast by people in good health, who is to say what amount of infection is spread by the presence in the bundles of which I complain of bed or body linen which has been in contact with a fever or small-pox patient

The importance of this subject must be my excuse for troubling you with this letter. I am, Sir, yours faithfully,

L. J. DESSURNE.

London Central Club, New Bridge-street, E.C., July 29th, 1884.

Miss Bromley.—Nothing would be gained by publishing the letter. The views of the public on the question do not coincide with those of the medical profession.

L.R.C.S.E.—Yes, undoubtedly.

Mr. John E. Howe, M.B.—The paper will be inserted in an early number.

PRICKLY HEAT.

To the Editor of THE LANCET.

SIR,—Referring to Mr. Wharton's article in the current number of THE LANCET on "Prickly Heat," I may remark that in a recent voyage to the East several cases of this affection came under my notice. I found that warm applications of bicarbonate of soda with a small quantity each of carbolic and hydrocyanic acids gave speedy relief in every case. My first cases were treated with cold applications; but on one occasion, having used hot water, which happened to be more handy, for the solution, I was much struck with the speedy relief afforded, and employed it in each subsequent case.—Yours faithfully,

Austin Friars, E.C., Aug. 2nd, 1884. KENNETH MILLICAN.

O. S. W.—It is usual to get a fee of a guinea for certifying as to the mental condition of a pauper. Whether or not in the present case our correspondent's services must go unremunerated depends upon the terms of the contract, which is not before us. He cannot be compelled to give evidence without subpœna, or having been bound over to appear at an adjourned hearing of a case. If summoned, he must give evidence as to facts, even if a fee is not paid in advance.

Prudentia.—The list can be taken as only a rough indication of the number of practitioners in the colony.

Mr. Frank Taylor.—*Berliner Klinische Wochenschrift* and *Progrès Médical.*

Progrès is referred to THE LANCET of June 14th, p. 1106.

"INFANTILE DISEASE AND MORTALITY."

To the Editor of THE LANCET.

SIR,—I think the letter of Mr. Tomkins deserves more than passing reference. The evil that he points out is one of national importance, and one that demands the utmost effort of every medical man, by his advice, to lessen. The public look to us for guidance in such matters; and if we were, in our relations to mothers, expectant and otherwise, to impress upon them the dangers of improper management of the infant in its early days, I question whether eventually the death-rate in infant life would not be very much lessened. To show the frightful mortality in early life, let us take the total death-rate (say) for 1882. In the whole of England and Wales during that year 516,813 died, and out of that number 125,147 were infants under the age of one year! Here is a slaughter of the innocents that would have delighted the heart of Herod or Attila, one-fourth of all the deaths occurring in the first twelve months of life. Imagine such a mortality among sheep or cattle. What preventive legislation there would be, to be sure! If the mortality continued at this pace, the duration of human life would be about five years on the average; but happily it does not, for fewer die in the next four years of existence than in the first one.

Now, what are the causes of this frightful infant sacrifice? The greatest undoubtedly are dry-nursing and improper food. Dr. Zoul, coroner for New York, says that "if one hundred infants are put out to dry-nurse, and every care taken, in less than three months seventy will be dead." If this be so, and I believe it is, here is the prolific cause; and until mothers are taught that there is no proper food for their offspring until the period of teething has commenced save their own milk, so will it continue. There is no more difficult task than rearing healthy children on artificial food; it is not too much to say that it is impossible. The evil of dry-nursing their infants has spread from the upper to the lowest strata of society; the feeding-bottle has been the curse of this generation, and it has been the means of bringing out hundreds of patent foods, every one of which is utterly unsuitable for the purpose it is advertised for—an additional evil. We all know that an infant cannot digest anything but milk; and still we see our patients daily dosing them with pap, gruel, bread, &c., when they are a few days old, and thinking this is the correct thing. "Dirty bottles, sour decomposing milk, bread, pap, gruel, soothing syrups, indigestion, malnutrition, and death" might truly be the epitaph written over the untimely grave of many a poor atom of humanity. The dangers of over-suckling are a very trivial affair, and where one child dies from that cause five hundred die from the other.

Personally, I cannot blame myself for being lax in my advice to mothers, and I have even taken the trouble to write a shilling book[1] to teach them how to feed their little ones. But unless every medical man does his share in such a merciful work the mortality will continue, and a coming generation of rickety, consumptive, ill-nourished children will rise up in judgment against us. Must we go to the brute creation for lessons? Does the young calf eat hay, or the bitch feed its offspring on meat? Nature and instinct are the truest guides; and if the dictates of fashion and prejudice are allowed to warp maternal duties and feelings, the curse will surely follow.

I am, Sir, yours truly,

Aug. 4th, 1884. NATHANIEL EDWARD DAVIES.

Mr. J. Holdrich Williamson, M.R.C.S.—The letter scarcely calls for notice at our hands.

T. E. B., "under the circumstances," must excuse us from replying to his note.

A CORRECTION.

To the Editor of THE LANCET.

SIR,—Will you permit me to correct a slight error in your account of the meeting of the Medical Officer of Schools Association on the 24th ult. I did not state (as reported) that in my opinion the certificates obtained from parents as to the recent exposure of school children to known sources of infectious disease were utterly worthless. On the contrary, I expressed my belief in the great value and importance of requiring such certificates to be properly filled in and signed by the parent or guardian upon each occasion of the child's return to school; and I should still hold such certificates to be of value, even though their influence were limited to directing the parent's attention to sanitary precautions, the necessity for which may otherwise be too easily ignored or forgotten. I am, Sir, yours faithfully,

Hertford, Aug. 6th, 1884. C. E. SHELLY.

[1] "Nursery Hints" (London: Chatto and Windus).

MEDICAL STUDENTS IN GERMANY.

THE following figures show the number of medical students at the chief German universities during this term:—Berlin, 924, including 20 from America, 6 from Asia, and 2 from Africa; Jena, 168; Bonn, 289; Königsberg, 267; Halle, 222; Göttingen, 189; Giessen, 126; Tübingen, 224; Strassburg, 172. The autumn cyclus of the holiday course of lectures for practising medical men will take place at Berlin from Sept. 24th to the end of October.

A M.D. of Twenty Years' Standing.—There is one fatal objection to our correspondent's proposals: they are utterly impracticable. Let him reflect on the impossibility of passing a Medical Bill through Parliament with the most moderate proposals, and he will see the impracticability of such suggestions as he makes.

Dr. James Tilly.—The card should be forwarded to the bodies from which the person in question obtained his qualification, with a request that they will administer reproof. As regards the public, there is nothing to hope for but increased intelligence as to the meaning of thorough vaccination.

FATAL CASE OF ACUTE INVAGINATION OF ILEUM.

To the Editor of THE LANCET.

SIR,—The record of the following typical case may be worthy of a place in your esteemed journal.

Alice J——, aged eight years, was one of three children; the remaining two, aged respectively fourteen and sixteen years, were healthy. The mother was healthy, but the father had died at the age of thirty-six years of chronic phthisis. Alice was tall for her age, thin, and dark; her health was good and her bowels regular; her appetite for meat was indifferent, but for farinaceous food it was good. On July 15th she ate some cherries. On the next day her bowels were confined; otherwise she seemed well, and went as usual to school; she, however, refused her lunch, and, seeming ill, was sent home at twelve o'clock. A medical man saw her on the same day, and prescribed a purge. I saw the patient on the 16th; she then complained of abdominal pain, incessant vomiting, and constipation. Treatment was adopted, and she was ordered to bed. I again saw her in bed on July 21st. Her condition was worse than when first seen. She lay on her back, with the right leg flexed on the abdomen, complaining much of abdominal pain. Her arms were tossed about, and dark circles surrounded her eyes. The skin was cold and clammy, the face anxious and pinched-looking, and the tongue dry and brown; the pulse was small, fast, and feeble, and the respirations quick and shallow. There was incessant vomiting, the vomited matter being yellow and smelling offensive. The abdomen was distended, chiefly towards the middle line; large veins wandered over the integument of the chest and abdomen (a point noticed by the child's mother); the surface of the abdomen was irregularly undulated, due to distended coils of small intestine beneath. Deep down to the left of the cæcum, and almost at right angles to it, one could feel an elongated, firm, and tender mass obscurely through the intervening tissues. Neither gas, fæces, mucus, nor blood passed through the anus. Thirst was intense. On the evening of the 22nd the pain ceased, and on the following morning the vomiting ceased. In the evening the patient was drowsy, and there was a leaden hue of surface; the skin of exposed parts felt rough, and seemed obscurely papular about the face, and especially on the forehead. The patient died quietly on the night of the 24th.

The treatment consisted in perfect rest, eight-minim doses of tincture of opium, iced liquid diet given often in minute doses, voluminous injections of water, and afterwards of oil. During the last twenty-four hours before death opium was withheld. Operation was refused.

The condition of the body on examination twenty hours after death was as follows. Distended coils of small intestine rose into the incision; the large intestine throughout was collapsed and contracted. To the left of the cæcum lay a dark, hard, elongated tumour, consisting of the last six inches of the ileum, the left and upper three inches being invaginated into the right or cæcal portion; the peritoneal surfaces were glued together by recent lymph; the muscular coats were swollen and softened. The whole was of a purple colour. In undoing the invagination the softened bowel gave way to a small extent. The ileo-cæcal valve was not involved. There were no signs of general peritonitis.—I am, Sir, yours obediently,

JOHN MCMUNN, L.R.C.P., L.R.C.S. Ed.

Park-lane-terrace, Aug. 1st, 1884.

Mr. J. Wrison.—Technically, perhaps not; but we know of no law which would make it easy to prosecute a gentleman with the qualification mentioned, and using the title now employed by any Licentiate of a College of Physicians who pleases to do so.

COMMUNICATIONS not noticed in our present number will receive attention in our next.

COMMUNICATIONS, LETTERS, &c., have been received from—Mr. Shelly, Hertford; Dr. Shuttleworth; Dr. Luffan, Cashel; Mr. A. Clarke; Mr. Bride, Runcorn; Mr. Benham, London; Mr. Simpson, London; Dr. Wilson, Cheltenham; Dr. Platt, London; Mrs. Mecht, Earl's Colne; Mr. Herring, Bailith; Mr. N. E. Davies, Sherborne; Dr. R. Maclaren, Carlisle; Dr. Weber, Stockton, California; Dr. Swallow, London; Mr. T. Forster, Manchester; Dr. De Renzy; Dr. Savage, London; Dr. Hope, Liverpool; Dr. C. Fox, Ilfracombe; Dr. Lediard,

Carlisle Mr. F. Taylor, London; Mr. Charles Hawkins, London; Mr. T. H. Walker, Newcastle-on-Tyne; Messrs. H. S. King and Co., London; Mr. Davidge, London; Mr. McDonald, London; Mr. Todd, London; Dr. Huxtable, Auckland; Dr. Manning, Gladesville, N.S.W.; Dr. Alder Smith, London; Mr. McMunn, London; Mr. K. Millican, London; Mr. J. B. Howe, London; Dr. O'Dwyer, London; Dr. W. H. Stone, London; Dr. Buchanan, Glasgow; Miss Bromley, Bewdley; Dr. W. Jones, Ruthin; Messrs. Christy and Co., London; Mr. Nelson Hardy, Dulwich; Mr. A. E. Edwards, London; Mr. E. Owen, London; Dr. Sanctuary, Salisbury; Mr. Manning, Coombe Martin; Miss Sinclair, St. Mary Cray; Mr. Grant, Birmingham; Surgeon-Major Skeegan, Indor; Mrs. Leslie, London; Dr. Tibbits, London; Dr. Struthers, Aberdeen; Mrs. Pratt, Cardiff; Mr. Bramwell, Newcastle-on-Tyne; Mr. Reade, Canterbury; Major Ormond, Bath; Mr. Pery, Bordeaux; Mr. Mackenzie, Ardgaur; Mr. Fletcher, Northwich; Dr. Moxon, Matlock; Messrs. Smith and Son, Manchester; Mr. Dalmas, Leicester; Messrs. Burgoyne and Co., London; Mr. Cornish, Manchester; Mr. Russell, London; Dr. Burns, Hampstead; Dr. Blyth, Worthing; Dr. Skrimshire, East Dereham; Mr. Lofthouse, Snenton; Dr. Thomas, Glasgow; Mr. Scott, Manchester; Mr. Oliver, Manchester; Dr. Althaus, London; Mr. E. C. Crippe, Cirencester; Dr. Brachet, Aix-les-Bains; Medicus; Shooting; Medicus, Brechin.

LETTERS, each *with enclosure*, are also acknowledged from—Mr. Cole, Holywell; Mr. Grant, Birmingham; Messrs. Smith and Co., London; Dr. Finch, Salisbury; Messrs. Hoffnung and Co., London; Mr. Parkinson, Tunbridge Wells; Mr. Farley, Ontario; Mr. Beaman, Ashton; Mr. Cuckson, Gainsborough; Messrs. Maclehose and Son, Glasgow; Dr. Eberle, Thirsk; Mr. Head, Balshan; Mr. White, Bayswater; Dr. Lawrence, Chepstow; Messrs. Oliver and Boyd, Edinburgh; Mr. Green, Woodbridge; Dr. Edwards, Harold; Mr. Turner, Knowle; Dr. Watters, Gloucester; Messrs. Hawkes and Co., Birmingham; Mr. Smale, Macclesfield; Rev. A. J. D'Orsey, London; Mr. Mellin, Peckham; Mr. Davenport, London; Messrs. Squire and Co., London; Mr. Delaney, Southgate; Mr. Maycock, Leamington; Mrs. Arminson; Mr. Hodgkins, Oxford; Mr. Godfrey, Isle of Wight; Mr. Nicholls; Dr. Dowse, London; Mr. Eastwood, Blackburn; Mr. Woodman, New Malden; Messrs. Burroughs and Co., London; Mr. Hamilton, Dromahair; Mr. Haywood, Manchester; Mr. Coombe, Sheffield; Mr. Ernst, London; Mr. Dalby, London; Dr. Ash, London; Dr. Clitheroe, Peckham; Mr. Morgan, Stoke Newington; Mr. Husband, Leeds; Mr. Boyce, Shrewsbury; Mrs. Bedingfeld, Pimlico; Mr. Lamb, Allbrighton; Mr. Walker, Aberdeen; Mr. Roy, Jersey; Mr. Bard, Maidstone; Mr. Cæsar, London; Mr. Perry, Dartford; Dr. Hill, Oldham; Mr. Harrop, Middleton; H. G., Balham; Dr. H. W., Clapham; Omega, Weybridge; Medicus, Bayswater; Veritas; M. L.; Nolan, Birmingham; W. S., Durham; Medicus, Standish; Medicus, Ketton; M.D., Swanage; Delta, London; H. S., Limehouse; L. R.; M. N. O.; Zeta; V. M., Camberwell; M.D., London; T. J. H., Streatham; Medicus, Whitchurch; J. B., Rotherham; Veritas, Leicester; H. S., Weybridge; Alpha, Penistone; Veritas, Aberdeen; H. G., London; F. G., Leicester; K.; R. S., Epperstone; Medicus, Bristol; Medicus, Brighton; G. B., Bristol; A. R.; Lady Principal, Leeds; Dunstan, Rugeley; Telegraph, Bristol; Domas; C. D.

South Wales Daily News, Liverpool Courier, Pioneer, Calcutta Englishman, Maryborough Chronicle, Glasgow News, Retford Times, New Ross Standard, Kimberley Independent, Kimberley Diamond Fields Advertiser, Tapanui Courier, Guernsey Advertiser, Factory News, Dumfries and Galloway Standard, &c., have been received.

Medical Diary for the ensuing Week.

Monday, August 11.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10½ A.M. each day, and at the same hour.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M. each day, and at the same hour.

METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.

ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M

ST. MARK'S HOSPITAL.—Operations, 2 P.M., and on Tuesdays at the same hour.

HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M., and on Thursday at the same hour.

Tuesday, August 12.

GUY'S HOSPITAL.—Operations, 1½ P.M., and on Friday at the same hour. Ophthalmic Operations on Mondays at 1.30 P.M., and Thursdays at 2 P.M.

WESTMINSTER HOSPITAL.—Operations, 2 P.M.

WEST LONDON HOSPITAL.—Operations, 2.30 P.M.

Wednesday, August 13.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.

MIDDLESEX HOSPITAL.—Operations, 1 P.M.

ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1½ P.M., and on Saturday at the same hour.—Ophthalmic Operations on Tuesdays and Thursdays, at 1.30 P.M.

ST. MARY'S HOSPITAL.—Operations, 1½ P.M.—Skin Department: 9.30 A.M., on Tuesdays and Fridays.

ST. THOMAS'S HOSPITAL.—Operations, 1½ P.M., and on Saturday at the same hour.

LONDON HOSPITAL.—Operations, 2 P.M., and on Thursday and Saturday at the same hour.

GREAT NORTHERN HOSPITAL.—Operations, 2 P.M.

SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2½ P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M., and on Saturday at the same hour.—Skin Department: 1.45 P.M., and on Saturday at 9.15 A.M.

ROYAL FREE HOSPITAL.—Operations, 2 P.M.

Thursday, August 14.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M.

ST. BARTHOLOMEW'S HOSPITAL.—1½ P.M. Surgical Consultations.

CHARING-CROSS HOSPITAL.—Operations, 2 P.M.

CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and on Friday at the same hour.

NORTH-WEST LONDON HOSPITAL.—Operations, 2½ P.M.

Friday August, 15.

ST. GEORGE'S HOSPITAL.—Ophthalmic Operations, 1½ P.M.

ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 2 P.M.

ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

KING'S COLLEGE HOSPITAL.—Operations, 2 P.M.

Saturday, August 16.

KING'S COLLEGE HOSPITAL.—Operations, 1 P.M.

ROYAL FREE HOSPITAL.—Operations, 2 P.M

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